

*Nomen omen*: the 'Sphere of Life and Death'  
in England, c. 1200 – c. 1500

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Philosophy

## Declaration of Authorship

I, Joanne Edge, hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

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### Abstract

This thesis analyses the 'Sphere of Life and Death', present in 55 known manuscripts of English provenance, c. 1200 - c. 1500. The 'Sphere' is an onomancy, which claims to predict the future by the numbers that correlate to the letters of an individual's name. While the early medieval 'Sphere' (to c. 1125) has been studied in some depth, very little attention has been given to the later medieval examples. The sheer number, and varied contexts, of surviving manuscripts containing the 'Sphere' show that it was a very popular prognostic in late medieval England, and is worthy of full-scale study. This thesis hopes to fill this gap in the scholarship and demonstrate that the 'Sphere' was used by a wide cross-section of medieval society.

This thesis is in three sections. Section 1, on the cultural and legal background, has five chapters: the first provides definitions of terms and places the 'Sphere' in the context of divination, prognostic and onomancy. The second chapter looks at the appeal of such a device. The third outlines the ancient and early medieval origins of the 'Sphere', while the fourth provides typologies and ownership of the late medieval 'Sphere'. The fifth chapter centres on the status of the 'Sphere' as illicit divination. Section 2 focuses on specific manuscript contexts in which the 'Sphere' is found as a way of establishing its readership: literate physicians, the aristocracy and gentry, scholars and monks. Section 3 examines the 'Sphere' in the period c. 1500 – c. 1700. It analyses the manuscripts and printed books owned and copied in this period. It ends by looking at the intellectual context of the 'Sphere' in the early modern period by examining the justifications for and condemnations of its use produced during this time.

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## Introduction

One of the most unifying themes in human experience is the fear of death. Anxieties surrounding the time of passing, and rituals performed both before and after death, are near-ubiquitous across a range of different societies and civilisations from the earliest times. From these fears stems the desire to gain certainty about one's time of death, and the need for certainty in this matter was as true for medieval Europeans as it is for those diagnosed with terminal illnesses today. 'How long have I got?' is a question to which doctors are still not able to give a definite answer. Physicians must prognosticate based on knowledge gained from years of medical research and personal experience and can only give the patient a likely estimate of life expectancy. Even then, some people live much longer than expected, and some perish much sooner. That medical prognosis is still far from perfect in the present day is discussed by sociologist and physician Nicholas Christakis, whose book *Death Foretold: Prophecy and Prognosis in Medical Care* discusses 'the use physicians make of prognosis, the symbolism it contains, and the practical and emotional difficulties it involves'.<sup>1</sup> Christakis also laments the relative neglect of prognosis, as opposed to diagnosis and therapeutics, in contemporary medical texts and practice, and calls for renewed efforts for improvements in this field.<sup>2</sup>

Given that an accurate prognosis in the present day is still impossible, even with the undeniable efficacy of modern biomedicine compared to its pre-modern counterpart, it should be of no surprise that the prediction of death in medieval Europe was an inexact business at the best of times. Anxieties surrounding death were compounded by the Christian framework of medieval European thought. There was a general fear of experiencing a sudden death (*mors improvisa*), or being unprepared for the moment and not receiving the last rites from a priest. A treatise called the *Ars moriendi* ('The Art of Dying') survives in over 300 Latin and vernacular manuscripts of late medieval European provenance.<sup>3</sup> This treatise gave the reader the information necessary to be prepared for death at any time.<sup>4</sup>

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<sup>1</sup> Nicholas Christakis, *Death Foretold: Prophecy and Prognosis in Medical Care* (Chicago: The University of Chicago Press, 1999), p. xi.

<sup>2</sup> Christakis, *Death Foretold*, pp. 3-13.

<sup>3</sup> On the *Ars moriendi* see Jeffrey Campbell, 'The *Ars Moriendi*: An examination, translation, and collation of the manuscripts of the shorter Latin version', (Unpublished MA thesis, University of Ottawa, 1995); and *The Craft of Dying: A Study in the Literary Tradition of the Ars Moriendi in England* ed. Nancy Lee Beaty (New Haven: Yale University Press, 1970).

<sup>4</sup> On medieval death and death rituals, see Paul Binski, *Medieval Death: Ritual and Representation* (London: British Museum Press, 1996); T. S. R. Boase, *Death in the Middle Ages: Mortality, Judgment and Remembrance* (London: Thames and Hudson, 1972); R. C.

Perfecting the death ritual was seen as crucial to the soul's chances of minimising time in purgatory (that is, the purificatory state between physical death and entering heaven).

Taking these factors into account, it should not be surprising that a plethora of ways of predicting life or death, and specifically the time of death, survive in medieval manuscripts. These prognostic texts and techniques were, for the most part, not original products of the Middle Ages, but passed down from much earlier traditions. Some, such as uroscopy, were based on the observation of bodily changes and emissions. Astrological methods looked to the heavens to predict an individual's fate. Yet more prognosticatory systems were divinatory, based on the observation of signs. Still more were passed down from the oral tradition and at some point committed to writing. Despite all these varied methods of prognosis that are extant in multiple manuscripts, however, no book or anthology has been produced on this topic. Luke Demaitre has taken up Christakis's lamentation on the lack of focus on medical prognosis, noting that the dearth of scholarship on its pre-modern counterpart is equally sparse.<sup>5</sup> Thus, a monograph on medieval medical prognosis is urgently needed, and its lack points to the necessity of detailed work on the different methods of prognostication that circulated in medieval manuscripts.

Despite the desire for certainty around the time of death, and the specifically Christian reasons for desiring a 'good death' in late medieval Europe, not all the methods of prediction that survive in late medieval manuscripts were compatible with orthodox Christianity. Some systems of prediction, such as those passed down from the oral tradition, might have been viewed as magical or superstitious. Others, for example judicial astrology (as opposed to permissible natural astrology) and divinatory procedures, were considered by many Christian writers from Augustine (354 – 430 CE) onwards as being counter to Divine Providence: the notion that only God can know the future, as well as the doctrine of man's free will.<sup>6</sup> Notwithstanding

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Finucane, 'Sacred Corpse, Profane Carrion: Social Ideals and Death Rituals in the Later Middle Ages', in *Mirrors of Mortality: Studies in the Social History of Death* ed. Joachim Whaley (London: Europa, 1981), pp. 40-60; and Frederick S. Paxton, *Christianizing Death: The Creation of a Ritual Process in Early Medieval Europe* (Ithaca: Cornell University Press, 1990).

<sup>5</sup> Luke E. Demaitre, 'The Art and Science of Prognostication in Early University Medicine', *Bulletin of the History of Medicine* 77 (2003), pp. 765-766.

<sup>6</sup> For Augustine's objections to divination and astrology as counter to Divine Providence and free will, see Saint Augustine, *Concerning the City of God against the Pagans* I:v:1-11, trans. Henry Bettenson (London: Penguin, 1984), pp. 179-196. For a discussion of astrology, divination and free will in the Middle Ages see J. R. Veenstra, *Magic and Divination at the*



this, all kinds of prognostics, both licit and illicit, were copied into manuscripts over and over again throughout the Middle Ages, alongside and within a great variety of other writings.

It was not just life and death that medieval prognostics could be used to predict. As is the case today, medieval people desired knowledge of all kinds. For example, one might want to know the sex of an unborn child, or whether or not a spouse had been unfaithful. One might also seek to know the outcome of an event – who might succeed or lose at a duel or win a race. Additionally, knowledge of a good time to carry out a particular event might have been desired, such as a journey or matters of business. Therefore, a range of people at all levels of society might use prognosticatory methods for a wide variety of reasons, either through their own calculations, or by consulting a practitioner.

In an attempt to make up for the lack of scholarship on medieval prognostics and prognosis, this thesis focuses on the ‘Sphere of Life and Death’, one of the most popular prognostic devices, extant in 52 manuscripts (and three no longer surviving) of English provenance, produced in the period c. 1200 – c. 1500. It will demonstrate that this numerological prognostic, corrupted in Latin translation and almost childishly simple to use, was in fact seen as a serious method of prediction by a large cross-section of literate society: medical practitioners, the aristocracy and gentry, scholars of the Faculty of Arts at the medieval university, and monks. The evidence for this interest will be derived from an analysis of the different manuscript contexts in which the ‘Sphere’ is present, and the textual information which accompanies it.

### The ‘Sphere of Life and Death’

In 1597, the astrologer-physician Simon Forman (1552 - 1611), based in London, copied into the end of one of his notebooks a divinatory diagram intended to foretell an individual’s future by the numbers corresponding to the letters of his or her name. Next to the diagram he wrote the following verse:

This is a ruele of my devise  
Howe thou shalt knowe yf thou be wise  
Thy frind from foe, for to discerne

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*Courts of Burgundy and France: Text and Context of Laurens Pignon’s ‘Contre les devineurs’ (1411)* (Leiden and New York: Brill, 1998), pp. 184-198.

And how to save thyselfe from harme  
 And whom to truste for happy mate  
 Yf thou wylt lyve in quiete estate  
 And whoe shall by thy perfecte foe  
 Amonge the rest and others noe  
 And whom to admit thy counsell to  
 Yf thou have matters great to doe  
 And yf thou liste to wedd a wife  
 Howe thou shalte shune both rare and strife  
 And all by letters of their name  
 Is knowen the truth of all this fame.<sup>7</sup>

Forman's device, then, could be used to predict the outcome of a variety of events: from choosing friends, to avoiding danger, to picking a spouse. In stating 'This is a ruele of my devise', Forman claimed that number-letter divination (onomancy) was his own invention.<sup>8</sup> This is entirely spurious. The western tradition of onomancy can be documented back as far as fourth-century CE Greece, although this practice is almost definitely much older. The art of number-letter divination was present in a host of ancient and early medieval cultures and languages, including Greek,<sup>9</sup> Hebrew,<sup>10</sup> Arabic,<sup>11</sup> Syriac<sup>12</sup> and Ethiopic<sup>13</sup>; and it may well have existed in others too (see chapter 3).

The 'Sphere of Life and Death' (henceforth the 'Sphere') is the most popular onomancy extant in medieval manuscripts, and takes several names, the most

<sup>7</sup> Oxford, Bodleian Library MS Ashmole 354, f. 174r.

<sup>8</sup> On Forman, see Lauren Kassell, *Medicine and Magic in Elizabethan London: Simon Forman, Astrologer, Alchemist, and Physician* (Oxford: Clarendon Press, 2005).

<sup>9</sup> On onomancy in Greek see Auguste Bouché-Leclercq, *Histoire de la divination dans l'Antiquité* vol. I (Paris: Ernest Leroux, 1879), pp. 261-264; Auguste Bouché-Leclercq, *L'astrologie grecque* (Paris: Ernest Leroux, 1899), pp. 537-40; Paul Tannery, 'Notice sur des fragments d'onomatomancie arithmétique', *Notices et extraits des manuscrits de la Bibliothèque Nationale et autres bibliothèques* XXXI.2 (Paris: Imprimerie nationale, 1886), pp. 231-260; Marcellin Berthelot and Charles-Émile Ruelle, *Collection des anciens alchimistes grecs* vol. I (Paris: Georges Steinheil, 1887), pp. 86-92; André-Jean Festugière, *La révélation d'Hermès Trismégiste I: L'astrologie et les sciences occultes* (Paris: Gabalda, 1949), pp. 125, 327 and 336-339; and O. Neugebauer and G. Saliba, 'On Greek Numerology', *Centaurus* 31 (1989), pp. 189-206.

<sup>10</sup> On onomancy in Hebrew see Moses Gaster, 'The Hebrew Version of the Secretum Secretorum: a Mediaeval Treatise Ascribed to Aristotle', *Journal of the Royal Asiatic Society* (1907-08), pp. 879-912. Reprinted in Moses Gaster, *Studies and Texts in Folklore, Magic, Mediaeval Romance, Hebrew Apocrypha and Samaritan Archaeology* vol. II (London: Maggs Bros., 1925-1928), pp. 742-813 and 797-799.

<sup>11</sup> On onomancy in Arabic see *Magic and Divination in Early Islam* ed. Emilie Savage-Smith (Aldershot: Variorum, 2004), pp. xxxv-xxxvi.

<sup>12</sup> On onomancy in Syriac see *The Syriac Book of Medicines* trans. E. A. Wallis Budge, vol. II (London: Humphrey Milford, 1913), pp. 524-526, 531-535, 538-541 and 620-627.

<sup>13</sup> On onomancy in Ethiopic see Marcel Griaule, 'Notes sur l'arithmomancie éthiopienne', *Journal de la Société des Africanistes* 4 (1934), pp. 25-31; and Otto Neugebauer, *Ethiopic Astronomy and Computus* (Vienna, 1979), pp. 162-163.

popular being the 'Sphere of Life and Death' (*Spera de vita et morte*), the *Sphere of Pythagoras*, and the *Sphere of Apuleius*. It consists of a diagram (usually round) with a textual accompaniment (surviving in many redactions), and is used to predict the outcome of a variety of events, most commonly whether a sick person will live or die. It also variously claims to prognosticate the outcome of a battle or duel, the success of a long journey or whether or not a fugitive will return. In other words, it could be used for anything requiring a binary yes or no answer. To establish whether a sick person would live or die, one would take the name of the patient and convert the letters of his or her name into the corresponding numbers given within or next to the 'Sphere' diagram. To this total is added the number of the day of the moon on which the individual first fell sick, which could be calculated using lunar tables or an astrolabe. The number of the planetary weekday that the illness began on is then also added: each day of the week has its own number, which is almost always included in or next to the diagram. The grand total of name, lunar day and weekday is then divided by 30 (29 in certain redactions, although by c. 1200, when this study begins, 30 was used almost always as the divisor). The remainder is then sought in the centre of the diagram, where the numbers 1-30 are represented. If the number is in the top hemisphere of the 'Sphere', the patient will live; if not, s/he will die. The numbers in the central section are usually divided into three columns, indicating whether recovery or death will be quick, middling, or slow.

Many variations of the 'Sphere' diagram and text exist in manuscripts of European provenance from the earliest known translation into Latin (c. 805 CE) right to the end of the Middle Ages and beyond. As the name implies, the diagram is usually round, but in certain redactions it is represented as a square, rhombus, or in tabular form. Five textual variations are present in the early Middle Ages (to c. 1125), some of which persist into the later manuscript corpus. Several new textual redactions are attested from the later Middle Ages for several reasons. Firstly, the great translation movement of Graeco-Arabic texts into Latin from the twelfth century probably introduced new Latin versions of the text.<sup>14</sup> Secondly, the tradition of scribes as editors and innovators, rather than just as copyists, was a phenomenon of the later Middle Ages.<sup>15</sup> And thirdly, the 'Sphere' text was translated into the vernacular from

<sup>14</sup> On the twelfth-century translation movement see e.g. Marie-Thérèse d'Alverny, 'Translations and Translators', in *Renaissance and Renewal in the Twelfth Century* ed. Robert L. Benson and Giles Constable (Cambridge: Harvard University Press, 1982), pp. 421–462.

<sup>15</sup> On scribes as editors, see Irma Taavitsainen, *Middle English Lunaries: A Study of the Genre* (Helsinki: Société Néophilologique, 1988), pp. 115–117.

the end of the fourteenth century, which created new textual redactions. The late medieval 'Sphere', therefore, was not a fixed entity with a single text or diagram, or even sets of texts and diagrams. It evolved to suit the needs and tastes of those who copied and amended it.

### The historiographical background

Divination has not been wholly separated from magic in the historiography of the late medieval period. As discussed in chapter 1, magic and divination are separate, but related, phenomena, grouped together since the time of the Roman Empire due to their occult nature. Presently, the most important historiography on divination is contained within monographs on magic, such as those of Richard Kieckhefer, Jan Veenstra, Jean-Patrice Boudet and Benedek Láng.<sup>16</sup> In its medieval context, divination is always discussed alongside magic, as a parallel, or a subcategory. While there are several monographs and anthologies on divination in the ancient world,<sup>17</sup> a work solely dedicated to this topic in the Middle Ages does not exist. Scholarship which sees divination on its own terms, and as its own phenomenon, is therefore needed. This thesis, which focuses on one of the most popular forms of divination in medieval manuscripts, hopes to pave the way for further inquiry into this vast and neglected field of study.

Specific scholarship dedicated to the 'Sphere' began with studies which focus on manuscripts from Antiquity and the early Middle Ages: that is, up to c. 1125.<sup>18</sup> The first of these to focus on the early Middle Ages was Ernest Wickersheimer's 1914 article, which provided a quick overview of three types of early medieval 'Sphere' that he had identified: the *Sphere of Petosiris*, the *Sphere of Pythagoras* or *Apuleius*, and the *Tetragonus subiectus*. Wickersheimer, however, took a textual approach, and therefore the article offered nothing in the way of context: that is, who

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<sup>16</sup> Richard Kieckhefer, *Magic in the Middle Ages* (Cambridge: Cambridge University Press, 2000); Veenstra, *Magic and Divination*; Jean-Patrice Boudet, *Entre science et nigromance: astrologie, divination et magie dans l'occident médiévale (XIe-XVe siècle)* (Paris: Publications de la Sorbonne, 2006); Benedek Láng, *Unlocked Books: Manuscripts of Learned Magic in the Medieval Libraries of Central Europe* (University Park: The Pennsylvania State University Press, 2008).

<sup>17</sup> For example Sarah Iles Johnston, *Ancient Greek Divination* (Malden, MA; Oxford, and Chichester: Wiley-Blackwell, 2008).

<sup>18</sup> On the 'Sphere' in Antiquity see Bouché-Leclercq, *L'astrologie grecque*, pp. 537-40; Ernst Riess, 'Nechepsonis et Petosiridis fragmenta magica', *Philologus* 6 (1891-1893), pp. 325-394; Neugebauer and Saliba, 'On Greek Numerology'; and *The Syriac Book of Medicines* trans. Budge, vol. II, pp. 458-59 and 539.

might have used a 'Sphere' and why.<sup>19</sup> Lynn Thorndike's *A History of Magic and Experimental Science*, published in 1923, briefly discusses the 'Sphere' and includes a handlist of manuscripts containing, or perhaps containing, this device. Thorndike's list was based both on manuscripts he had seen, and manuscript catalogues that described items which could be the 'Sphere'. Thorndike remarks on the corruptions in the Latin translation of the 'Sphere' but does not expand past that context.<sup>20</sup> Charles Singer's 1928 book describes several manuscripts containing the 'Sphere' and offers a conclusion as to who might have used such a device and why. He hypothesises that it was used by monks to work out when venesection (blood-letting) should be performed, as well as by priests who wished to work out whether to administer extreme unction (i.e. the last rites).<sup>21</sup>

André Van de Vyver's article, published in 1936, discussed the earliest Latin translations of astrological and astronomical texts in the tenth and eleventh centuries, noting two different redactions of the 'Sphere' text and postulating that it was perhaps transmitted from Latin Antiquity to the Middle Ages.<sup>22</sup> Henry Sigerist, in 1942, provided a short introductory sketch and some individual transcriptions. He also showed that a tenth-century manuscript containing a 'Sphere', Vercelli Biblioteca Capitolare MS CLXXXVII (Arab. 42) f. 143r, shows signs of medieval use. In the right-hand margin, a medieval person noted down two sets of Latin numerals. The first set presumably included the numbers that corresponded to the letters of his name, and the second, a list of reductions of the grand total of the name by increments of thirty. Based on the number-letter equivalents of this particular device, Sigerist postulated that the name was Adlemuelus.<sup>23</sup> More recent work on the early medieval examples has been carried out by Faith Wallis, who looked at the computistical context of this device, that is, the astronomical calculation of time to work out the dates of major Christian feasts, most notably Easter.<sup>24</sup> Roy Liuzza also analysed the computistical setting in terms of the physical appearance of the

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<sup>19</sup> E. Wickersheimer, 'Figures médico-astrologiques des IXe, Xe et XIe siècles', *Janus* 19 (1914).

<sup>20</sup> Lynn Thorndike, *A History of Magic and Experimental Science*, vol. I (New York: Macmillan, 1923), pp. 682-684 and 692-694.

<sup>21</sup> Charles Singer, *From Magic to Science: Essays on the Scientific Twilight* (London: Ernest Benn, 1928), pp. 144-146.

<sup>22</sup> A. Van de Vyver, 'Les plus anciennes traductions latines médiévales (Xe-XIe siècles) de traités d'astronomie et d'astrologie', *Osiris* I (1936), pp. 674-676.

<sup>23</sup> Henry E. Sigerist, 'The Sphere of Life and Death in Early Medieval Manuscripts', *Bulletin of the History of Medicine*, 11 (1942), pp. 292-303.

<sup>24</sup> Faith Wallis, 'Medicine in Medieval Calendar Manuscripts', in *Manuscript Sources of Medieval Medicine: A Book of Essays* ed. Margaret R. Schleissner (New York and London: Garland, 1995), pp. 105-143.

'Sphere'. Liuzza also suggested that the ability to use a 'Sphere' may have distinguished the educated monastic physician from a village healer.<sup>25</sup> Valerie Flint makes a similar point about the 'Sphere' in her work on early medieval magic, stating, 'It is hard to see what, if any, comfort the sufferer derived from such activities, but they certainly gave the calculator power of a sort through which pretensions of the local medicine man or woman might have been thwarted'.<sup>26</sup>

The most significant study of the early medieval 'Sphere', however, is that of Sándor Chardonens, whose work on Anglo-Saxon prognostics dedicates a significant portion to 'Spheres' in manuscripts of English provenance from the tenth and eleventh centuries. Chardonens defines 32 types of prognostic, in 17 categories, including what he refers to as the 'Apuleian Sphere', in his manuscript corpus. Chapters in this work are devoted respectively to manuscript context, possible places of origin, the status of prognostics as 'superstition', and possible uses of these prognostics. A weighty appendix follows, which consists of transcriptions and editions of four prognostics, including the 'Sphere'.<sup>27</sup> However, Chardonens's study is not without flaws. As Demaitre discusses in his review, the unification of very disparate material into categories proves to be a major problem, and the author's silence on other forms of prognosis (such as augury and medical prediction) is puzzling. Demaitre concludes that '*Anglo-Saxon Prognostics* proposes fascinating but tentative theses'.<sup>28</sup> In terms of the 'Sphere', in particular the amassing of bibliography and the production of a working typology and editions, Chardonens's work provides an excellent starting point from which to carry out further research into the 'Sphere'. This early medieval background is discussed in chapter 3.

In contrast to the fairly extensive scholarship carried out to date on the early medieval 'Sphere', however, very little scholarly attention has been paid to manuscripts containing this device from the later Middle Ages. This neglect seems all the more strange when one considers both the sheer number of manuscripts of both English and European provenance that contain the 'Sphere' from this time

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<sup>25</sup> Roy Michael Liuzza, 'The Sphere of Life and Death: Time, Medicine, and the Visual Imagination', in *Latin Learning and English Lore: Studies in Anglo-Saxon Literature for Michael Lapidge* ed. Katherine O'Brien O'Keefe and Andy Orchard, vol. II (Toronto: University of Toronto Press, 2005), pp. 28-52.

<sup>26</sup> Valerie Flint, *The Rise of Magic in Early Medieval Europe* (Princeton: Princeton University Press, 1991), p. 134.

<sup>27</sup> László Sándor Chardonens, *Anglo-Saxon Prognostics, 900-1100: Study and Texts* (Leiden and Boston, MA: Brill, 2007).

<sup>28</sup> Luke Demaitre, review of *Anglo-Saxon Prognostics, 900-1100: Study and Texts*, László Sándor Chardonens. Reviewed in: *Speculum* 84:3 (July, 2009), pp. 682-684.

period, and the great variation in manuscript contexts in which this prognostic is found. There are, however, several brief studies worthy of mention. The first is an article by Linda Ehram Voigts that analyses one late medieval manuscript, fifteenth-century London, British Library MS Harley 3719, and draws some very interesting conclusions about the dual use of Latin and Middle English in medieval scientific texts. Voigts agrees that Singer's theory about the use of a 'Sphere' to work out when venesection should be carried out might be viable, but states that there is no evidence for its use specifically by priests to work out when to administer the last rites.<sup>29</sup> The second is a section in Láng's book on magic in late medieval Eastern European manuscripts. Láng makes the very important point that the 'Sphere' was copied continuously into manuscripts for three main reasons: it was visually expressive, brief, and useful.<sup>30</sup> Voigts and Willy Braekman have also both carried out work on a late medieval expanded Middle English variation of the 'Sphere' called the *Golden Table of Pythagoras* (discussed in chapter 4).<sup>31</sup> Other scholars allude to the late medieval 'Sphere', such as Peter Murray Jones in his work on medicine in illuminated manuscripts,<sup>32</sup> and Hilary Carey in her article on late medieval medico-astrological almanacs.<sup>33</sup> Neither, however, includes much more than a passing reference. While Voigts, Braekman and Láng raise some interesting questions about the 'Sphere' in the late medieval context, these questions remain unanswered. This thesis aims to draw some conclusions about who might have used this device in later medieval England, and offer some reasons as to why they did so.

### Thesis scope and outline

This thesis focuses on the 'Sphere of Life and Death' in manuscripts of English provenance produced c. 1200 – c. 1500. The surviving manuscripts from throughout the Middle Ages fall into two distinct phases. The first, c. 800 – c. 1125, sees the

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<sup>29</sup> Linda Ehram Voigts, 'The Latin Verse and Middle English Prose Texts on the Sphere of Life and Death in Harley 3719', *The Chaucer Review* 21:2 (1986), pp. 291-305.

<sup>30</sup> Láng, *Unlocked Books*, pp. 130-131.

<sup>31</sup> W. L. Braekman, *Studies on Alchemy, Diet, Medecine [sic] and Prognostication in Middle English* (Brussels: Omirel UFSAL, 1986), pp. 83-111; Linda Ehram Voigts, 'The Golden Table of Pythagoras', in *Popular and Practical Science of Medieval England* ed. Lister M. Matheson (Woodbridge: Boydell, 1994), pp. 123-139.

<sup>32</sup> Peter Murray Jones, *Medieval Medicine in Illuminated Manuscripts* (London: British Library, 1998), p. 53.

<sup>33</sup> Hilary M. Carey, 'What is the Folded Almanac? The Form and Function of a Key Manuscript Source for Astro-medical Practice in Later Medieval England', *Social History of Medicine* 16:3 (2003), p. 491.

'Sphere' in an almost-solely computistical context. The twelfth century saw a proliferation of translations into Latin from the Graeco-Arabic tradition of more sophisticated methods of time-reckoning, and so the early medieval computistical tradition died out, and with it, the 'Sphere'. After the last computistical manuscripts containing 'Spheres' were produced, there appears to have been an abrupt break in the manuscript tradition, and no English manuscripts survive containing 'Spheres' until the end of the twelfth century. Circa 1200, the 'Sphere' reappears in manuscripts, but in various contexts. Over the next 300 years, it is found with works of literate, learned medicine, some of which were on the curriculum of medicine at the university of Oxford. Additionally, it can also be confidently placed in the ownership of known medieval physicians. It is also present in the commonplace books of the late medieval gentry, and a certain textual redaction indicates aristocratic appeal. Additionally, it appears alongside quadrivial tracts on the curriculum of the Arts Faculty at medieval Oxford, especially with tracts of astronomy and arithmetic. Finally, as in the early medieval period, the 'Sphere' is present in monastic manuscripts.

This thesis has nine chapters, in three sections. The first section covers the cultural and legal context of the 'Sphere'. Chapter 1 focuses on providing working definitions of 'divination', 'prognostic' and 'onomancy', and discusses some of the main types of each category extant in medieval manuscripts. Definitions have not proved easy. The boundaries between divination and magic, for example, are permeable, and the place of astrology within this system is not at all easy to establish. There is also the problem of using anachronistic terms such as 'onomancy', a word not attested until after 1500, to describe a medieval practice. A further issue with definitions is that our modern understandings of particular words may be different from how medieval people understood them. Despite these issues, definitions, however problematic, are essential in order to examine the available material, provided that some inevitable blurring of boundaries is acknowledged.

Chapter 2 aims to place the 'Sphere' in the wider context of late medieval culture, by looking at beliefs about, and debates surrounding, names, numbers and lunar astrology; as well as the multiple associations of circular diagrams in the Middle Ages. Numbers had been perceived to carry great power in Antiquity and throughout the Middle Ages, in works such as Plato's *Timaeus*. In this text, numbers were seen as the building blocks of nature. In terms of names, the essential debate in the Middle Ages, which had been ongoing since Antiquity, was the following: are



names arbitrary, or do they contain something of the bearer? Anthropological studies of a broad range of cultures have also established a variety of beliefs as to the nature of proper names. The use of a lunar and planetary element by the 'Sphere' can also be easily understood with recourse to the popularity of lunar astrology since Antiquity. This chapter will then move on to analyse the 'Sphere' from the point of view of visual culture. It will discuss the 'Sphere' as a diagram, before moving on to look at the appeal and usefulness of round diagrams in medieval manuscripts.

Chapter 3 examines the Antique and early medieval background of the 'Sphere'. First attested in a Demotic magical papyrus of the fourth century CE, there are then no extant 'Spheres' until a c. 805 Latin translation. The early medieval 'Sphere' survives, perhaps unsurprisingly, solely in a monastic context, and is usually found with computistical items. During the twelfth century, more sophisticated and accurate methods of computus were translated from the Graeco-Arabic tradition, and the computistical tables with which the 'Sphere' was copied became obsolete. From around 1125, manuscripts of the old computistical tradition which contained the 'Sphere' stopped being produced, and there is a dearth of surviving 'Spheres' in manuscripts of English provenance until the late twelfth century. At that point, it first appears in a handbook-sized miscellany along with many newly-translated scientific treatises, now London, British Library MS Royal 7 D XXV, f. 75v (figure 1 and appendices I:1 and I:2).<sup>34</sup> Thenceforth, the 'Sphere' appears in a variety of manuscripts designed for, and used by, a large cross-section of literate society.

Chapter 4 focuses on the manuscript corpus on which this thesis centres – 54 extant manuscripts, two of which no longer contain 'Spheres' but clearly once did, and a further manuscript which is known about thanks to a late-fourteenth-century library catalogue. It examines the different types of 'Sphere' text which circulated in this time, and vernacularisation into both Anglo-Norman and Middle English. It then analyses some of the new authorities that the 'Sphere' is attributed to in this time, and ends with a discussion of ownership and signs of use of the 'Sphere' in the manuscript corpus.

Chapter 5 demonstrates that, while the 'Sphere' was copied into a variety of manuscripts along with licit material, it was nevertheless illicit divination. The

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<sup>34</sup> London, British Library MS Royal 7 D XXV, f. 75v.

chapter begins by outlining the objections to divination in general, from Augustine of Hippo through to Thomas Aquinas (1225 - 1274). As previously stressed, divination was unacceptable in a Christian framework. The lists of condemned magic and divinatory practices produced by theologians and philosophers in the Middle Ages must be read as literary *topoi* rather than expressions of reality: it is clear that many of these authors were copying verbatim from other sources, and that these lists do not necessarily reflect actual practices. The 'Sphere' itself is condemned in Gratian's *Decretum* of the 1140s, and this condemnation is copied word for word into several pastoral manuals and spiritual guides up until the fifteenth century, including Thomas of Chobham's (c. 1160 – c. 1236) extremely popular *Summa confessorum*, written in the early thirteenth century. It is important to remember, however, that a condemnation was not necessarily indicative of actual practice, especially for a time when very few court records survive. Therefore, a discussion about the legal context of the 'Sphere' in practice will follow.

The second section of the thesis will examine the different manuscript contexts in which the 'Sphere' is found in the late medieval English corpus, and in one case a particular textual redaction, to work out the audience and readership of the 'Sphere' in the period c. 1200 – c. 1500. Users have been identified as literate physicians, the gentry and aristocracy, scholars, and monks. These user groups, of course, are not mutually exclusive. The most learned physicians had, of course, been scholars, and many monks were also physicians. Monks and aristocrats were also scholars. As well as an analysis of the English material, each of these central chapters also contains a brief discussion of some continental manuscripts containing 'Spheres'. These manuscripts were located serendipitously during the course of this PhD, rather than as a result of any systematic search, and are included to provide useful analogues to the English material.

Chapter 6 focuses on the 'Sphere' in manuscripts for medical practitioners. While the medical uses of the 'Sphere' are obvious, as its foremost use was to predict whether a patient would live or die, it was nevertheless a condemned occult item, almost childishly easy to use and often hopelessly corrupted. Despite this, it survives in several manuscripts alongside treatises on the curriculum of medicine at medieval Oxford (and perhaps Cambridge), as well as other texts of learned medicine. Furthermore, certain manuscripts that contain it can be placed in the ownership of particularly important late medieval English physicians, such as Roger

Marchall (d. 1477), a Cambridge graduate in medicine and later physician to Edward IV (1461 – 1470 and 1471 – 1483).

Chapter 7 deals with the 'Sphere' as an item of interest to the gentry and aristocracy. It begins by discussing the 'Sphere' in commonplace books for the gentry and analyses the possible use of such a device to families. Essentially, the 'Sphere', along with other occult items, was not only a practical and useful thing to possess, but also a symbol of power. The next part of the chapter discusses the appeal of the 'Sphere' to the aristocracy. A specific 'Sphere' redaction is present in three late fifteenth-century manuscripts which emphasises its usefulness for predicting the outcome of a duel. Trial by combat between aristocrats enjoyed its heyday in the later fourteenth century, and there are many reasons why both those competing in fights to the death, and those overseeing such duels, would want to know the outcome in advance. As it includes a lunar and planetary element, a 'Sphere' could be used in making a decision on which day would be propitious (or not) for a certain individual to fight. However, the 'Sphere' was ill-equipped to predict the outcome of a duel, since the combatants could find both their names in the top or bottom half. One of the other popular onomancies, the *Victorious and Vanquished*, was in fact ideally suited to such a task. Thus, aside from its corrupted nature, the 'Sphere' could throw up added ambiguity in its use for predicting duels: ambiguity which might well have been welcome to those arbitrating such events in the later Middle Ages.

Chapter 8 discusses the institutions that owned 'Spheres' in late medieval England: universities and monasteries. The medieval university and monastery were inextricably linked: the university evolved from cathedral and monastic schools, and all scholars were required to take at least minor orders before being able to study. Discounting those manuscripts clearly intended for scholars of medicine, the 'Sphere' appears in books for scholars in the Faculty of Arts alongside works on the curricula of the *quadrivium*, mainly astronomy, arithmetic and Aristotelian philosophy. From the point of view of contents, this is not particularly surprising. It is, however, curious that a short, practical work of simple divination appears next to theoretical tracts on the quadrivial curriculum at Oxford. Most notably, the 'Sphere' often appears with *De sphaera mundi* of John of Sacrobosco (c. 1195 – c. 1256): the most important basic work of astronomy on the curriculum at the medieval university throughout Europe. Three potential reasons for this appearance with quadrivial items can be hypothesised. The first is that an intellectual link was made

between items of astronomy and arithmetic on the one hand, and the 'Sphere' on the other. The second potential reason is that the ability to predict the future could be lucrative for poor scholars: the 'Sphere' might be used to predict the future for financial gain. The third possible reason is that it was perhaps a method of practice for very basic arithmetic and astronomy.

Monks and monasteries continued to copy and own 'Spheres' into the later Middle Ages. Five codices within the corpus containing the 'Sphere' can be placed in the ownership of particular monasteries and individual monks. The deathbed rituals of Benedictine houses, outlined by Frederick Paxton, give us some indication of the importance of prognosis.<sup>35</sup> Another potential reason that monks might be attracted to such a device is illuminated by both Kieckhefer's concept of the 'clerical underworld' - the surplus of clergy in the later Middle Ages, largely underused and perhaps unsupervised. The practices in which they indulged might include anything from black magic involving the invocation of demons, theurgy (angelic magic), and divination.<sup>36</sup> Building on this, Sophie Page's recent work on texts of ritual magic that were present in the libraries of late medieval English monasteries provides further insight into why monks might own such items. Page hypothesises that monks might collect illicit texts to test their usefulness and orthodoxy. Furthermore, monks may have felt that they were safe from the perils of dabbling in the occult, as their religious status gave them the moral fibre to read, test and perhaps even use illicit texts appropriately.<sup>37</sup>

The third section of this thesis consists of an epilogue which examines the form and fortune of the 'Sphere' in England, c. 1500 – 1700. This chapter addresses the 'Spheres' extant in manuscripts and printed books of English provenance produced in this time, establishing ownership and looking at the texts that the 'Sphere' travelled with in these codices, as well as a comparison with the continental material. Additionally, it discusses those manuscripts produced in England before 1500 with proven post-1500 owners. It seems that the 'Sphere' experienced its

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<sup>35</sup> Frederick S. Paxton, 'Remembering the Dead at Cluniac Funerals', in *Erinnerungskultur im Bestattungsritual* ed. J. Jarnut and M. Wemhoff. [Mittelalterstudien des Instituts zur Interdisziplinären Erforschung des Mittelalters und seines Nachwirkens, Paderborn 3] (Munich: Wilhelm Fink Verlag, 2003), pp. 177–190.

<sup>36</sup> Richard Kieckhefer, *Forbidden Rites: A Necromancer's Manual of the Fifteenth Century* (University Park: The Pennsylvania State University Press, 1997), p. 12.

<sup>37</sup> Sophie Page, *Magic in the Cloister: Pious Motives, Illicit Interests, and Occult Approaches to the Medieval Universe* (University Park: The Pennsylvania State University Press, 2013), pp. 25–29.

zenith in the fifteenth century, since the number of surviving manuscripts in the two centuries post-1500 is much fewer than for the period c. 1200 – c. 1500. However, the ‘Sphere’ does appear in several printed works produced in England, from fortune-telling manuals for the gentry such as Samuel Strangehop’s *Book of Knowledge* (1675) to serious works of science by leading intellectuals, such as the *Utriusque cosmi* of the Oxford academic Robert Fludd (1574 – 1637).

The second part of this chapter addresses the works that were produced by Renaissance intellectuals to justify and/or explain the art of onomancy. These include the *De occulta philosophia* of Heinrich Cornelius Agrippa (1486 – 1535), written at the beginning of the sixteenth century. Agrippa’s work circulated widely in both manuscript and printed form in England. Additionally, it will analyse the *Artis onomantiae* of Annibale Raimondo, produced in mid-sixteenth century Verona. These justifications or explanations, however, can be counterbalanced by the several condemnations of magic and divination produced by early modern intellectuals who specifically refer to ‘onomancy’ or ‘arithmancy’. These vary from the sceptical *Discoverie of Witchcraft* by Reginald Scot (1538 – 1599) to the *Daemonologie* of King James VI of Scotland and I of England (1566 – 1625). The explicit reference in these treatises and condemnations to the art of number-letter divination shows that it existed as a conceptual entity. Finally, this chapter will look at known prosecutions for the use of a ‘Sphere’ in both England and continental Europe.

Following on from the main thesis is a set of appendices. The first appendix consists of working transcriptions and editions of different late medieval ‘Sphere’ texts in manuscripts of English provenance, both in Latin and the vernacular. The second appendix includes a working list of manuscripts of English provenance for the period c. 1200 – c. 1500, and a working list of all known manuscripts containing the ‘Sphere’ produced in Europe between Antiquity and the seventeenth century.

## Chapter 1

### Divination, prognostic, and onomancy: definitions and types

#### Introduction

This chapter will place the 'Sphere' in the wider context of prognostic material, by providing working definitions of 'divination', 'prognostic', and 'onomancy', and a survey of the varieties of texts extant in medieval manuscripts that belong in these categories. These definitions are very much working definitions, and cannot be applied rigidly, but some distinctions are crucial to the analysis of the 'Sphere' and of how it fits into the bigger picture of prognosis in late medieval England. This survey of divinatory and prognostic material that circulated in manuscripts of late medieval English provenance will demonstrate the range and popularity of such predictive methods. Onomancy is one of the commonest methods of divination extant in medieval manuscripts; and the 'Sphere' is perhaps the most popular form of onomancy. Therefore, this study of the 'Sphere' hopes to enrich our understanding of the wider phenomenon of prediction in the later Middle Ages.

#### Divination: a working definition

What is 'divination', and how is it distinct from 'magic' and 'astrology'? As William F. Ryan pointed out in his survey of Russian magic, the classification of divinatory practices is not an easy one:

With divination the problem is not so much of concept as of classification, although even here difficulties arise. Although it is fairly easy to see that most divination is an attempt to predict an outcome or reach a correct decision rather than to produce a result, the means of achieving a prediction may differ little from the magic employed to obtain a result or prevent a prediction from being realised.<sup>38</sup>

Thus, for Ryan, the aims of divination are clear enough. It is the means that perhaps provide the problem in categorisation. Láng, however, has come up with the most useful definition of divination to date, which this thesis adopts: divination is '...the procedure of foretelling the future and discovering hidden knowledge through the interpretation of signs'.<sup>39</sup> So the aim of divination isn't always the prediction of the

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<sup>38</sup> W. F. Ryan, *The Bathhouse at Midnight: An Historical Survey of Magic and Divination in Russia* (Stroud: Alan Sutton, 1999), p. 5.

<sup>39</sup> Láng, *Unlocked Books*, p. 123.

future: 'hidden knowledge' might include questions such as the location of hidden treasure, the identity of a thief or any other knowledge that cannot be easily or quickly obtained.

How, then, is divination separate from magic? Both are occult practices, mostly condemned and forbidden by the Church in the Middle Ages. It would be inaccurate to draw absolute boundaries between the two categories, but a rule of thumb can be established in that the key difference between magic and divination is in aims rather than means. Divination is passive: it does not seek to change anything, merely to obtain knowledge. Someone might seek to change events after receiving a prediction via divination, but the agency of that change would not come from the divinatory process. However, the vast majority of magical operations are active and seek to change events. Admittedly, some magic spells, which do not involve the interpretation of signs, have passive aims. For example, the *Ars Notoria*, a text of ritual magic that enjoyed extraordinary popularity in the thirteenth and fourteenth centuries, has as its main aim the acquisition of full knowledge of the seven liberal arts through a complex process of prayer and ritual to invoke angels.<sup>40</sup> It is magical-divinatory operations such as this which blur the boundaries between the two categories, as well as the boundaries between magic, divination and religion.

Part of the reason that magic and divination have become so entwined as categories is that from Antiquity the two genres were grouped together, for example in Plato's *Republic*. Plato groups *manteis* (diviners) together with the creators of magical curse-tablets.<sup>41</sup> Thus, the Church Fathers, most significantly Augustine, inherited a list of superstitious practices from late Antiquity, ultimately derived from the Roman scholar Varro (116 – 27 BCE), which was copied virtually unchanged through to Isidore of Seville (c. 560 – 636) in the seventh century, John of Salisbury (c. 1120 – 1180) in the twelfth century, Thomas Aquinas in the thirteenth century, and Nicole Oresme (c. 1320 – 1382) in the fourteenth. There is the distinct impression that this list is a literary invention, with no bearing on divination as it was practised in the Middle Ages.<sup>42</sup> The list in Isidore's *Etymologiae* includes magical practitioners such as *magi* (sorcerors), *incantatores* (those who use words and incantations) and *arioli* (idol-worshippers); a list of divinatory practices such as

<sup>40</sup> On the *Ars Notoria*, see Julien Véronèse, *L'Ars Notoria au Moyen Âge: Introduction et édition critique* [Micrologus Library, 21] (Florence: SISMEL, 2007).

<sup>41</sup> Iles Johnston, *Ancient Greek Divination*, p. 176.

<sup>42</sup> Veenstra, *Magic and Divination*, p. 15.

hydromancy, augury and sortilege; and astrology.<sup>43</sup> Essentially, Christian theologians who had perhaps come across very few, if any, actual magic or divinatory texts or practices believed that both worked by employing the power of demons. The illicit nature of divination in general, and the 'Sphere' specifically, is discussed in chapter 5.

#### Varieties of divination

With divination defined and separated somewhat from magic, the varieties of divination present in medieval manuscripts will now be set out. It must first be established what is excluded from the category of divination for present purposes. All forms of complex astrology such as horoscopes and nativities are ruled out. Astrology is separate from divination because while the stars are read as the sign of things to come, they are also considered to be the cause of events. For the same reason, short prognostics which depend solely on astrological or lunar data are omitted. This category includes items such as lunaries (moon books which set out the best days of the moon on which to perform or avoid particular activities), and the 'Egyptian Days' (those days on which it was dangerous to perform certain tasks). In these cases, the moon is the sole sign as well as the cause of future events. Finally, methods of medical prognosis such as uroscopy and sphygmology (pulse-reading) are excluded, since there is a Hippocratic-Galenic rationale behind the use of these particular signs to predict the future health of a patient. For example, in the case of uroscopy, humoral theory underpins the idea that a given colour of urine indicates a particular prognosis (on uroscopy and sphygmology see chapter 6).<sup>44</sup>

Omitting the aforementioned practices, two sorts of divination can be discerned. The first is that which is spontaneous: a sign is observed with no prior preparation by the person who sees it. In this category are omens such as comets, earthquakes and monstrous births. This form of divination is often carried out retrospectively: a portent is witnessed and then something happens, and the two are linked after the event. Thus, passive divination is often found in narrative sources and chronicles to explain events. One of the most notable chronicle omens is in recensions C and D

<sup>43</sup> Isidore of Seville, *Etymologiae* VIII:ix.1-28, in *The Etymologies of Isidore of Seville*, ed. and trans. Stephen A. Barney, W. J. Lewis, J. A. Beach and Oliver Berghof, (Cambridge: Cambridge University Press, 2006) pp. 181-182.

<sup>44</sup> On the humoral underpinning of urine and pulse texts, see Faith Wallis, 'Signs and Senses: Diagnosis and Prognosis in Early Medieval Pulse and Urine Texts', *Social History of Medicine* 13:2 (2000), pp. 265-278.



of the *Anglo-Saxon Chronicle*'s entry for 1066, which records the sighting of a comet (later established to be Halley's Comet), which was interpreted as portending the arrival of the Normans. Recension D's account reads:

Then over all England there was seen a sign in the skies such as had never been seen before. Some said it was the star 'comet' which some call the long-haired star; and it first appeared on the eve of the Greater Litany, that is 24 April, and so shone all the week. And soon after this Earl Tosti came from overseas into the Isle of Wight with as large a fleet as he could muster and both money and provisions were given him. And King Harold his brother assembled a naval force and a land force larger than any king had assembled before in this country, because he had been told that William the Bastard meant to come here and conquer this country. This was exactly what happened afterwards.<sup>45</sup>

Recension D's scribe left no doubt that the comet was a portent of the Norman invasion. Nearly three hundred years later, many omens were retrospectively recorded as heralding the Black Death, which reached its peak in Europe in 1348-1350. These omens included earthquakes, rains of amphibians, and monstrous births.<sup>46</sup>

The second category of divination is that which is set up: an operator makes some kind of planned preparation to predict the outcome of an event. In this category are practices such as geomancy - literally, divination by earth - and augury/auspices - divination by the song and flight of birds. Geomancy became a tool of the learned medical practitioner after the twelfth century translation movement. Professional geomancers are attested in the Middle Ages, which points to its status as an extremely complicated form of divination (for the medical uses of geomancy see chapter 6).<sup>47</sup> Augury and auspices, both very common state-sponsored practices in ancient Rome, had all but died out in practice by the Middle Ages. There is, however, a tract on augury in a manuscript of English provenance, produced c. 1300, written in medieval Catalan. This tract is possibly a translation of a work by the scholar Michael Scot (1175 – c. 1232), and has the incipit *Qui quiere catar los*

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<sup>45</sup> *The Anglo-Saxon Chronicle* ed. Dorothy Whitelock with D. C. Douglas and S. I. Tucker (London: Eyre and Spottiswoode, 1961), pp. 140-141.

<sup>46</sup> See the multitude of examples in the primary sources printed in *The Black Death* ed. and trans. Rosemary Horrox (Manchester: Manchester University Press, 1994); and Laura A. Smoller, 'Of Earthquakes, Hail, Frogs and Geography: Plague and the Investigation of the Apocalypse in the Later Middle Ages', in *Last Things: Death and the Apocalypse in the Middle Ages* ed. Caroline Walker Bynum and Paul Freedman (Philadelphia: The University of Pennsylvania Press, 1999), pp. 156-187.

<sup>47</sup> On professional geomancers, see Laurel Braswell-Means, 'The Popular Art of Geomancy in the Medieval West and Contemporary Asia', *Journal of Popular Culture* 23:4 (1990), p. 135.

*agueros*.<sup>48</sup> While mentioned frequently in medieval condemnations of divination, it does not seem that pyromancy (divination by fire), hydromancy (by water) or aerimancy (by air) were actually practised in the Middle Ages, or if they were practised, no literary evidence survives of these practices. Two further methods of divination frequently attested in late medieval manuscripts are chiromancy (divination by lines on the palm of the hand) and spatulimancy/scapulimancy (divination by the lines on the shoulder-blades of animals, usually sheep). But by far the most popular type of divination attested in late medieval manuscripts is onomancy, to which this chapter will shortly turn.

Some forms of divination practised in the later Middle Ages do not fit neatly into either category of 'spontaneous' or 'set up'. A good example of this is oneiromancy (dream interpretation). The event itself, the dream, is spontaneous, but the oneiromancer goes through a codified set of rules to interpret the dream. Oneiromantic texts are common in late medieval manuscripts, the most popular probably being the *Somnia Danielis*: an alphabetical 'library of ancient dream topoi' originating in ancient Greece, found in many manuscripts from the ninth to the fifteenth centuries.<sup>49</sup> Many forms of divination are mentioned in medieval condemnations, then, but it seems that only a few were actually codified in the later Middle Ages. As discussed in chapter 5, the list of divinatory practices found in these condemnations is largely a literary *topos* and is probably not an accurate reflection of the reality of the practice of divination in this period.

#### Prognostic: a working definition

As well as being an example of divination, the 'Sphere' is also a prognostic. Chardonnens provides a useful definition: a prognostic is 'a codified means of predicting events in the life-time of an individual or identifiable group of individuals, using observation of signs and times, or mantic divination'.<sup>50</sup> This thesis adds the following to this working definition: a prognostic is also a relatively short text which

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<sup>48</sup> London, British Library MS Additional 34018, ff. 93r-93v. The possible link with Scot is taken from Agrippa. *Three Books of Occult Philosophy, written by Henry Cornelius Agrippa, of Nettesheim, Counsellor to Charles the Fifth, Emperor of Germany: and Judge of the Prerogative Court* trans. J. F. (1651), (reprinted London: Chthonios, 1987), pp. 108-109.

<sup>49</sup> Steven R. Fischer, *The Complete Medieval Dreambook: A Multilingual, Alphabetical Somnia Danielis Collation* (Berne: Peter Lang, 1982), p. 7. On dream divination see also Steven M. Oberhelman, *Dreambooks in Byzantium: Six Oneirocritica in Translation, with Commentary and Introduction* (Aldershot: Ashgate, 2008).

<sup>50</sup> Chardonnens, *Anglo-Saxon Prognostics*, pp. 7-8.

does not require any specialist training, and in some cases only basic numeracy or literacy. Thus, excluded from the category of 'prognostics' are long treatises such as the Hippocratic *Prognostics*, and methods of prognosis that require a degree of training, such as the drawing up of nativities and geomantic tracts. With this definition in mind, we can now move on to look at some prognostics comparable to the 'Sphere' in late medieval manuscripts of English provenance.

### Varieties of prognostic

Prognostics are relatively common in medieval manuscripts. Chardonnens, in his analysis of prognostics in manuscripts of Anglo-Saxon provenance, shows that prognostics are often found in 'prognostic sections', that is, sections within manuscripts that mostly or exclusively contain prognostics.<sup>51</sup> The situation in later medieval English manuscripts is no different. Prognostics are found in a variety of manuscript contexts, and sometimes within prognostic sections. The 'Sphere' is just one of many prognostics that can appear in such segments. Some of the fellow prognostics with which the 'Sphere' is often found will now be discussed, to give an idea of what can be included in this genre.

One of the commonest prognostics in late medieval England was the lunary, or moon-book. Essentially, a lunary listed the thirty days of the moon alongside activities that it was good or bad to carry out on each day, but some lunaries also included simple astrological calculations, such as those which also took into account the 28 mansions of the moon. Lunaries were simple to use, and are often found in the books of the gentry and wealthy householders of fifteenth-century England, more often than not in Middle English. That they were so popular in the vernacular suggests a wide readership base; much like the 'Sphere', which also enjoyed vernacular circulation in fifteenth-century England. A common Middle English lunary entitled 'The Thyrty Days of the Mone', found in various forms in at least seven manuscripts, describes the non-propitious fifth day, and the prose version talks about the prediction of death, 'He pat falleth seek pat day schal sone dye'.<sup>52</sup>

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<sup>51</sup> Chardonnens, *Anglo-Saxon Prognostics*, p. 49.

<sup>52</sup> Taavitsainen, *Middle English Lunaries*, p. 123. On lunaries see also Laurel Braswell, 'The Moon and Medicine in Chaucer's Time', in *Studies in the Age of Chaucer* 8 (Knoxville: New Chaucer Society, 1986), pp. 145-156; and Laurel Means, *Medieval Lunar Astrology: A Collection of Representative Middle English Texts* (Lampeter: Edwin Mellen, 1993).

A second popular prognostic in late medieval England was the so-called 'Egyptian Days', which listed the days on which it was unpropitious to perform certain activities. This ancient tradition, practised all over the Near Eastern and Classical worlds in various forms, stated that there were 24 Egyptian Days a year, that is, two per month. Paired with certain hours, particular Egyptian Days were viewed as extremely dangerous. The 'Sphere' and Egyptian Days appear together in the early medieval computistical compendia produced at monasteries all over Europe, and are identified as being of the same genre in the condemnation of Gratian (discussed in chapter 5). Treatises on the 'Egyptian Days' were present in manuscripts circulating at universities in the thirteenth century. This is suggested by a mnemonic for remembering them, a version of which was composed by John of Sacrobosco at the University of Paris c. 1235, entitled *armis gunfe*.<sup>53</sup>

A third prognostic comparable to the 'Sphere' is that which predicts the weather, and therefore potential epidemics, of the year ahead. This works by establishing the day of the week on which a certain date, usually Christmas or the first kalend of January, falls. This genre is often spuriously attributed to Ezekiel, Denis, or Esdras.<sup>54</sup> Like the Egyptian Days, this prognostic is also identified as being of a similar genre as the 'Sphere' in Gratian's condemnation (discussed in chapter 5). This Anglo-Norman example is taken from the fourteenth-century Oxford, Bodleian Library MS Ashmole 342, f. 29r, and gives a weather forecast for the year ahead when the first kalend of January falls on Sunday:

Mestre, des calendes de Jeniver voderay joe oyer la definiciuns: volunters  
dist e lucidara.

Si le[s] calendes de Jeniver entrent par dimayne, bon iver serra, ver plein de  
vent, esté sec e plein de vent e de tempeste. E ees murrunt.<sup>55</sup>

Prognostics, then, were short, simple methods of prediction that were easy to memorise and use.

<sup>53</sup> On the Egyptian Days see e.g. Don C. Skemer, 'Armis Gunfe: Remembering Egyptian Days', *Traditio* 65 (2010), pp. 76-107.

<sup>54</sup> See Edith Ann Matter, 'The *Revelatio Esdrae* in Latin and English Traditions', *Revue Bénédictine* 92 (1982), pp. 376-392; Tony Hunt, 'Les Pronostics en Anglo-Normand: Méthods et Documents', in *Moult obscures paroles: études sur la prophétie médiévale* ed. Richard Trachsler, Julien Abed and David Expert (Paris: PUPS, 2007), p. 34; and Roy M. Liuzza, 'What is and is not Magic: The Case of Anglo-Saxon Prognostics', *Societas Magicas Newsletter* 12 (2004), p. 1.

<sup>55</sup> Oxford, Bodleian Library MS Ashmole 342, f. 29r. Transcribed in Hunt, 'Les Pronostics', p. 35.

### Onomancy: a working definition

The *Oxford English Dictionary* defines onomancy as 'Divination from a name or names, esp. the letters of a personal name'. Onomancy is actually a haplogy, i.e. a shortened version, of 'onomatomancy' or 'onomamancy'. According to the same dictionary, the first recorded instance of 'onomancy' in the English language is from 1602, in chapter 8 of the *Art of Stenographie* by John Willis (d. 1625) which states, '...the ancient Hebrewes and Greekes, as also the Pythagoreans in their divinations by Onomantie, used all the letters of the Alphabet as Numerals'.<sup>56</sup> As far as can be known, 'onomantia' and its vernacular derivatives, were never widely used before 1500.

There is, however, some very slim evidence of the word being in existence before 1500. Charles Burnett analysed a potential introduction to a version of the *Alchandreana* called the *Proportionones competentes in astrorum industria*, composed at the end of the tenth century, as part of the first medieval Latin interest in the new Graeco-Arabic forms of astrology. This short tract has the incipit *Ut testatur Ergaphalau*, and is an attempt to show where the 'science of the stars' fitted into the wider scheme of the sciences as a whole. The author divides the sciences into two: voluntary science of the soul, and natural science of the body. The former is exclusive to man, and is divided into *philosophica*, *sapientia* and *scientia simpliciter*. *Sapientia* is divided into that which is ministered, and that which is ministering. That which is ministered is *phisica*, divided into *medicina* and *astronodia*. Within *astronodia* is found *astronomia* and *astrologia*, and *astronomia* is subdivided into *prima* and *secunda*. Within *prima*, *perfecta* and *imperfecta* are located, and within *imperfecta* are five categories: *cronica*: the practitioner makes a judgment from the hour in which the client arrives with the astrologer; *planetica*: in which the judgment is made from the position of the planets; *augealis*: in which the positions of the planets within their houses are significant; *sensualis*: prediction from earthly things such as the movements of animals and winds; and *onomica*: prediction from the numbers that correlate to the letters of names. The author links *onomica* specifically with the *Alchandreana* corpus, '...per nominum supputationem divinat, ut Astronomia ALEXANDRI'.<sup>57</sup>

<sup>56</sup> "onomancy, n.". OED Online. June 2014. Oxford University Press <<http://0-www.oed.com.catalogue.ulrls.lon.ac.uk/view/Entry/131475?redirectedFrom=onomancy>> (accessed September 08, 2014).

<sup>57</sup> Charles Burnett, 'Adelard, Ergaphalau and the Science of the Stars', *Warburg Institute Surveys and Texts 14. Adelard of Bath: An English Scientist and Arabist of the Early Twelfth*

Despite this reference, however, 'onomica' is unlikely to be a direct ancestor of 'onomantia'. While both are derived from the Greek 'onoma-', meaning 'name', 'onomica' is only attested in this one work, which survives in just two manuscripts. One of these manuscripts is from the twelfth century; the other was produced in 1395.<sup>58</sup> It is, then, very unlikely that 'onomantia' comes from 'onomica'. What is more plausible is that 'onomantia' was devised sometime in the sixteenth century to describe this category of divination. However, by including *onomica* as a division of imperfect *astronomia*, we can see that the author of *Ut testatur Ergaphalau* saw divination by names as a category of its own, at least within the category of *astronomia*. Therefore, aside from the reference in *Ut testatur Ergaphalau*, which one would be hard-pressed to see as a direct ancestor of 'onomantia', it would seem that the word 'onomancy' was very much an invention of the Renaissance. For convenience, however, this thesis will utilise the word 'onomancy' to describe medieval number-letter divination, despite the anachronism.

#### Varieties of onomancy

As David Juste points out, the history of number-letter divination before the Middle Ages is not at all easy to trace.<sup>59</sup> All that can be said with certainty is that types of onomancy existed in the ancient and medieval worlds, and evidence survives for onomantic devices in Greek, Hebrew, Arabic, Syriac, and Ethiopic in Antiquity and the Middle Ages. As discussed in chapter 3, onomancies could be easily translated between these languages, as each uses an alphabetical system that matches numbers to letters. It was in translation to Latin when corruptions became inevitable. One of these onomancies was the 'Sphere'. Other varieties of onomancy, however, were also passed down to the Middle Ages from the ancient world, which will now be examined.

The first variety of onomancy is the *Victorious and Vanquished*. This works by judging two values against each other to determine a winner, for example which combatant will win in a duel. This text consists of four tables: the first contains the planetary weekdays and their numerical equivalents; the second the list of victorious and vanquished numbers; the third the divisor according to the topic; and the fourth

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*Century* ed. C. Burnett (London: The Warburg Institute, 1987), pp. 133-145. Reprinted in Burnett, *Magic and Divination*, II.

<sup>58</sup> Burnett, *Ergaphalau*, p. 135.

<sup>59</sup> David Juste, *Les Alchandreana primitifs: étude sur les plus anciens traités astrologiques latins d'origine arabe (Xe siècle)* (Leiden: Brill, 2007), p. 206.

the letters of the alphabet and their numerical equivalents. To determine which of two combatants will win the user takes the name of each separately, finds the numerical equivalents of the letters in the fourth table, and adds them up. The total is divided by nine and the remainder (a number between one and nine) is noted. The second table is then consulted to find out which number wins out of each possible combination, and this will indicate the victor. In the case of sick person, the remainder is determined, and compared with the remainder of the number given to the planetary weekday on which the person fell sick. To find out which one of a married couple will survive the other the numerical values of their names are added up, divided by 7 and the second table is consulted. This version of onomancy is perfect for predicting the outcome of a duel, unlike the 'Sphere', because one number will always conquer the other. A 'Sphere' could easily place both combatants in the top half or both in the bottom half, which would cause confusion. For the use of the sphere to predict the outcome of a duel, see chapter 7.

The *Victorious and Vanquished* did not appear in Latin translation before the twelfth century in the Latin West. Burnett notes that while this text was part of the Arabic version of the pseudo-Aristotelian *Secreta secretorum*, it was not present in the Latin version of the work until c. 1160, when it appears in the Eadwine Psalter (now Cambridge, Trinity College MS R.17.1) f. 282v, produced at Canterbury. The next known English manuscript containing the *Victorious and Vanquished* is a thirteenth-century manuscript illustrated by Matthew Paris (c. 1200 – 1259) at St. Albans, now Oxford, Bodleian MS Ashmole 304.<sup>60</sup> After the thirteenth century, many more manuscripts containing the *Victorious and Vanquished* are extant from the thirteenth to the fifteenth centuries, sometimes together with other onomancies, including the 'Sphere'.<sup>61</sup> Otto Neugebauer and George Saliba state, in my opinion correctly, that the 'Sphere' probably developed out of the *Victorious and Vanquished*. The method of pitting two numerical values against each other breaks down when trying to work out the fate of an individual as opposed to a pair, and so the number for the individual is pitted against the number of the planetary weekday in the *Victorious and Vanquished*. At some point, this procedure was converted into a single operation, which involved adding the planetary weekday and name totals together

<sup>60</sup> Charles Burnett, 'The Eadwine Psalter and the Western Tradition of the Onomancy in Pseudo-Aristotle's *Secret of Secrets*', *Archives d'histoire doctrinale et littéraire du moyen âge* 55 (1988), pp. 145. Reprinted in Burnett, *Magic and Divination in the Middle Ages: Texts and Techniques in the Islamic and Christian Worlds* (Aldershot: Variorum, 1996), XI.

<sup>61</sup> E.g. the late thirteenth-century London, British Library MS Additional 15236, f. 129v. See Burnett, 'The Eadwine Psalter', pp. 143–67.

before dividing by a fixed total of 29 or 30. To this was added lunar data, and the remainders were placed in a bisected circle, creating the 'Sphere of Life and Death'.<sup>62</sup>

The second form of onomancy that existed in the Middle Ages is astrological onomancy, as found in the aforementioned *Liber Alchandreana*. Astrological onomancy was used to discover astrological information about a client to make predictions about his or her future. Knowing the day of one's birth is a relatively modern phenomenon. Jean-Claude Schmitt points out that having knowledge of one's date of birth, and celebrating its anniversary, was very much a Renaissance invention. There are a few exceptions, such as fourteenth-century rulers in the Latin West having knowledge of their exact hour and day of birth for astrological purposes.<sup>63</sup> The operator, therefore, would probably not be able to ask a client's birth date. As well as this, the operator may not have had the information necessary to work out astrological data about the client from his or her date of birth. In this case, onomancy provided a simple way of discovering rather complex information.

Within its astrological corpus, the *Alchandreana* called for two different astrological-onomantic methods to be carried out, one to find out the lunar mansion and sign under which the client was born, the other to find out his or her planet of birth. To find out the lunar mansion and sign, the operator had to take the name of the client and of his or her mother, add up the numerical values of both names into a grand total and divide by twenty-eight. The remainder is distributed among the twenty-eight mansions beginning with the first mansion (Aries) and the last mansion indicates the birth mansion and sign. To find the planet of birth, the numerical value of the name of the client is added into a total and divided by nine or seven, and the remainder distributed among the planets in the order Sun-Venus-Mercury-Moon-Saturn-Jupiter-Mars. The last planet is the planet of birth. The mansion, sign and planet are then used to make predictions about the future of the client.

Additionally, four of the six versions of the *Alchandreana* contain solely onomantic methods: that is, their purpose was not discovering astrological information. Included in at least one version of this corpus are onomancies to find out which of a married couple will die first, the sex of an unborn child, the truth of a rumour, and

<sup>62</sup> Neugebauer and Saliba, 'On Greek Numerology', p. 191.

<sup>63</sup> Jean-Claude Schmitt, *L'invention de l'anniversaire* (Paris: Les editions arkhê, 2009), p. 8.



whether or not a woman is a prostitute. All of these outcomes are determined by whether the result of the calculation is odd or even. Additionally, there are onomancies to discover the identity of a thief, the recovery of a slave, the return of an absent person, the capture of a thief, the location of treasure and the outcome of an illness, all of which are determined, like the 'Sphere', by remainder.<sup>64</sup>

Thus, three main varieties of onomancy: the 'Sphere of Life and Death', the *Victorious and Vanquished* and the *Alchandreana* are attested in manuscripts of late medieval provenance. But in the late medieval English corpus at least two other kinds of onomancy are also present, both adaptations from or fusions of the three kinds that existed in the early medieval period. The first, *Si vis scire*, clearly derived from three onomantic processes that are also found in the *Syriac Book of Medicines*, the twelfth-century manuscript of much earlier material, containing a variety of onomantic devices. At least two of these onomancies are found in Latin translation in the *Alchandreana* corpus. This tract appears in several manuscripts, and, in the versions of which I am aware, is always tacked on to the end of a 'Sphere' text. These manuscripts are Oxford Bodleian Library MS 177 (Bernard 2072), ff. 1r-1v, from the end of the fourteenth century and four fifteenth-century manuscripts: Cambridge St. John's College MS 37 f. 53r, Cambridge Trinity College MS O.2.5, ff. 8r-v, London British Library MS Harley 3719, f. 177v, and Oxford Bodleian MS Digby 29, ff. 193v-194r. A part of this process is also included as a marginal note next to a 'Sphere' in a different hand in Oxford Bodleian MS Digby 46 f. 107v. This onomancy is as yet unedited, and the instructions for operation differ somewhat between manuscripts, but as it is the earliest witness, translated here are the instructions from Bodleian 177, with variants indicated in the footnotes. The first two predictions resemble the sorts of things predicted by the 'Sphere' and *Victorious and Vanquished*. The first is to work out the sex of an unborn child.

Also if you want to know if a pregnant woman will bear a boy or a girl make the name of the woman and the name of her youngest child into a total - and if she does not have a child calculate the name of her husband - and add 25 and divide by four. If the number is even she will bear a son, if odd, a daughter.<sup>65</sup>

<sup>64</sup> See the table in Juste, *Alchandreana primitifs*, p. 686.

<sup>65</sup> 'Item si vis scire de muliere / pregnante utrum pariet masculum vel feminam computa unius femine nomine et nomine mi / -noris filii et si non habuerit filium computa nomen mariti sui et adde 25 et postea / divide per 4 si par fuerit numerus pariet masculum si impar feminam'. Oxford, Bodleian Library MS 177 (Bernard 2072), ff. 1r-1v. Cambridge, St. John's College Library MS 37 says to add nineteen and divide by nine; Cambridge, Trinity College Library MS O.2.5 does not add any number and divides by 9; and Oxford, Bodleian Library

The second method is to discover which of a married couple will outlive the other:

If you want to know who will die first, a husband or wife, calculate their names, and find out the numbers of the letters and divide by nine. If the number is even the wife will lead the husband to the grave. If odd the husband will be buried by the wife.<sup>66</sup>

The third and final use is altogether more bizarre. It is to determine in which eye a one-eyed person is blind:

If there is a one-eyed person and you want to know in which eye he is blind, add up the letters of his name. If the total is even it is the left, if odd the right.<sup>67</sup>

Quite why this final onomancy circulated initially appears to be a mystery, as one would assume it would be obvious in which eye someone was blind, or that one could simply ask the person in question. However, as with many other seemingly strange techniques found in medieval works of science and medicine, a possible precedent is found in the *Natural History* of Pliny the Elder (23 – 79 CE). In a chapter dedicated to all kinds of medical knowledge, Pliny states:

...one of the discoveries of Pythagoras will not readily deceive you: that an uneven number of vowels in given names portends lameness, blindness, or similar disability, on the right side, and even number of vowels the same disabilities on the left.<sup>68</sup>

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MS Digby 29 says to add 8 and divide by 9. London, British Library MS Harley 3719 says that this onomancy is to find out whether or not a fighter will have a male or female child and says to add two and divide by nine. This procedure resembles an onomancy in Budge, *Syriac Book of Medicines* vol. II, p. 625; and a similar procedure appears in Latin translation in the version of the *Alchandreana* called *Quicumque*. Juste, *Alchandreana primitifs*, p. 504.

<sup>66</sup> 'Si vis scire quis primo / morietur aut vir aut femina computa nomina eorum et respice numerum litterarum et divide / per 9. Si sit par numerus uxor ducet virum in sepulcrum. Si impar vir uxorem terre / commendabat'. Oxford, Bodleian Library MS 177 (Bernard 2072), f. 1v. The other four manuscript witnesses say that if the remainder is even the husband will die first and vice versa. This derives from an onomancy in Budge, *Syriac Book of Medicines* vol. II, pp. 526-527; and a similar procedure appears in Latin translation in the version of the *Alchandreana* called *Quicumque*. Juste, *Alchandreana primitifs*, p. 504.

<sup>67</sup> 'Si quis sit monocolus et vis scire de quo oculo sit cecus computa litteras / nominis si pares de sinistro si impares de dextro'. Oxford Bodleian Library MS 177 (Bernard 2072), f. 1v. Cambridge, St. John's College Library MS 37 says that if the total is even then he is blind in the right eye and vice versa; Cambridge, Trinity College Library MS O.2.5 and Oxford, Bodleian Library MS Digby 29 also reverse the outcomes and add the instruction to divide the total of the name by nine. This procedure does not appear in London, British Library MS Harley 3719. This onomancy is found in Budge, *Syriac Book of Medicines* vol. II, p. 625. This procedure is not in the *Alchandreana* corpus.

<sup>68</sup> Pliny, *Natural History* XXVIII:6. Pliny, *Natural History: with an English translation in ten volumes* ed. and trans. W. H. S. Jones, vol. VIII (Cambridge: Harvard University Press, 1983), p. 25.

This, then, is perhaps the source of this onomancy, though obviously the rules are different, as the number of vowels does not come into it. Given the lack of attestation of this particular onomancy in any pre-fourteenth century manuscripts, it seems likely that this particular onomancy was devised in the later Middle Ages by an author combining the information in Pliny with the operation of the two onomantic devices for working out which of a married couple would die first and the sex of an unborn child.

London, British Library MS Harley 3719, containing the aforementioned 'Sphere' analysed by Voigts, also contains an onomancy similar to *Si vis scire* but with an extremely revealing addition in the form of a caveat to the second process. 'These are three exceptions: that none of them is put to death, nor die of the bloody flux, nor a woman dies in childbirth'.<sup>69</sup> This is an explicit 'get-out clause': there are certain quick, unpredictable and violent deaths which onomancy simply cannot predict. This is the only known example of a medieval scribe or copyist acknowledging that the outcome predicted by onomancy might be overridden. In post-Black Death England, murder or execution, illness, and childbirth were three very prominent ways in which a person might die suddenly. It was almost as if these were ways in which death overturned the usual and predictable course of nature. And a sudden death was all the more a concern at the beginning of the fifteenth century, in the wake of the Black Death.

Related to *Si vis scire* is an onomancy composed or copied by John Mirfield (d. 1407) into his *Breviarium Bartholomei*. Mirfield was chaplain at the hospital of St. Bartholomew in Smithfield, and his *Breviarium* was a vast medical encyclopedia. As part of a sprawling chapter entitled *De signis malis* which lists a plethora of ways known to Mirfield to predict death, the author includes the following:

Take the name of the patient, the name of the messenger sent to summon the physician, and the name of the day upon which the messenger came to you; join all their letters together, and if an even number result the patient will not escape, if the number is odd then he will recover.<sup>70</sup>

<sup>69</sup> 'Istis tamen exceptis quod nullus illorum // interficiatur nec per fluxum sanguinem moriatur. et similiter quod mulier non // moriatur in partu'. London, British Library MS Harley 3719, f. 177v.

<sup>70</sup> John of Mirfield, *Breviarium Bartholomei*, in *Johannes de Mirfield of St. Bartholomew's, Smithfield: His Life and Works* ed. and trans. Percival Horton-Smith Hartley and Harold Richard Aldridge (Cambridge: Cambridge University Press, 1936), p. 71.

This combines elements of the 'Sphere' and *Si vis scire*. The 'Sphere' elements are the purpose of the calculation (to work out life or death) and the addition of the number for the planetary weekday (though in this case worked out onomantically as opposed to the values for weekdays usually given with the 'Sphere'). But it also takes the template of *Si vis scire*: take two names and add their numerical totals together, and work out the answer in the same way: whether the result is odd or even. It is more than likely that Mirfield, or whoever composed the onomancy that he was copying, was trying to simplify the 'Sphere' process, by removing the need for written material at all. Providing the values assigned to each letter were memorised, there was no need to look up any data, since the outcome was determined by whether the result was odd or even, and the number of the day was worked out letter by letter. This particular onomancy is not known in any witness other than Mirfield's treatise, which is suggestive of composition by Mirfield himself.

The *Victorious and Vanquished*, *Alchandreana* onomancies, and *Si vis scire*, as well as being (usually) very close to the 'Sphere' in the kinds of things they claim to predict, are also commonly found with the 'Sphere' in late medieval manuscripts of English provenance. As discussed, *Si vis scire* in the late medieval English context is always found tacked on to the end of the 'Sphere' text. Thus, copyists and interested parties clearly saw the link between different versions of onomancy and decided that they should be copied together. This shows that a category of onomancy existed, if not in name, then certainly in thought, in later medieval England.

### Conclusion

'Divination' is broad and complex, and the working definition employed by this thesis is no more than a rough guide to a phenomenon that has so much in common with other equally intractable categories, most notably magic. 'Prognostic' has been easier to define: the grouping of particular simple predictive texts in manuscripts shows that this category existed in the Middle Ages, in thought if not in name. 'Onomancy' is perhaps the most problematic term of all: it was not used in the Middle Ages and is here projected backwards from its Renaissance origins. Equally, 'onomancy' implies only divination by names, and not by numbers. As with prognostics, it is only clear that such a category existed due to the combining of different letter-number predictive texts together in certain manuscripts. However blurred, these working definitions are important in understanding and explaining

how the 'Sphere of Life and Death' fitted into the broader picture of late medieval thought, as it has a place in all three of these nebulous categories.

Thus, the 'Sphere of Life and Death' did not exist in a vacuum in late medieval English manuscripts. A variety of divinatory texts also circulated, and as well as onomantic devices, these texts included works of geomancy, chiromancy, augury and scapulimancy; as well as the omens and portents found in chronicles, histories and literary works. These divinatory methods were used by a great variety of different people: some were complex and required professional practitioners, others were simple and perhaps only required basic literacy for operation. Prognostics too, circulated in various manuscripts, either copied together in prognostic sections, or on their own. As well as the 'Sphere', the most common varieties found in manuscripts include lunaries, Egyptian Days, and the January prognostic.

Onomancies, while relatively few in variety, were possibly the commonest of all divinatory and prognostic texts that circulated in late medieval English manuscripts. As well as the 'Sphere', the *Victorious and Vanquished*, and onomancies of the *Alchandreana* corpus are extant in multiple copies. And some of the onomancies in the *Alchandreana* began to circulate independently in later medieval manuscripts, such as those to predict the sex of an unborn child or which of a married couple would die first. And John Mirfield copied (or perhaps even composed) a new onomantic device at the turn of the fifteenth century, which combined elements of the 'Sphere' with those of the *Alchandreana* onomancies, perhaps for reasons of expediency. Within this category of onomancy, the 'Sphere' is extant in the most manuscripts. Having placed the 'Sphere' in the context of prognosticatory material, it will now be examined against the wider medieval backdrop of numerology, name theory and astronomy; and analysed in the context of the appeal and usefulness of diagrams in late medieval manuscripts.

## Chapter 2

### The intellectual context of the 'Sphere'

#### Introduction

This chapter will analyse the 'Sphere' from the point of view of its main operative elements: numbers, names, and lunar astrology; and its visual appearance as a diagram. This is one of several ways of examining the 'Sphere', and aims to place it in the wider intellectual context of late medieval Europe. No medieval onomantic text is accompanied by any exposition of the virtues of numbers and names. This is perhaps because the very appeal of such items was their compact nature, consisting of a diagram with usually minimal text. Additionally, the necessarily secretive nature of magic and divinatory items in general meant that an explanation might have taken away some of the mystery that surrounded them. Of the three main versions of onomancy that circulated in the Middle Ages, the most promising treatise in which to find any exposition on its attractiveness is the *Alchandreana* corpus, since it is much more verbose than either the 'Sphere' or *Victorious and Vanquished*. An examination of the text in Juste's edition, however, reveals nothing of interest in this regard. Therefore, the wider context around medieval notions of numbers, names, and lunar astrology must be examined in order to establish how and why this form of divination was thought to work.

#### Medieval numerology

The effect of numbers on medieval philosophy and theology cannot be exaggerated. Numerology was at the centre of medieval efforts to understand the physical world as well as subjects as diverse as ethics and art.<sup>71</sup> The first extensive development of number symbolism had taken place in ancient Mesopotamia, where numbers were heavily linked to astrology and the measurement of time.<sup>72</sup> This enthusiasm for numerology was shared by the ancient Greeks, who placed great importance on the central role of numbers in the creation of the world and everything in it. This stemmed from the Pythagorean belief that all reality could be reduced to number

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<sup>71</sup> Lawrence P. Schrenk, 'God as Monad: The Philosophical Basis of Medieval Theological Numerology', in *Medieval Numerology: A Book of Essays* ed. Robert L. Surlis (New York and London: Garland, 1993), p. 3.

<sup>72</sup> On numbers in ancient Mesopotamia see e.g. Eleanor Robson, 'Mathematics education in an Old Babylonian scribal school', in *The Oxford Handbook of the History of Mathematics* (Oxford: Oxford University Press, 2009), pp. 199-227.

relationships, which was transmitted to the Middle Ages largely via the *Timaeus* of Plato. The *Timaeus* was the only Platonic work available in the Latin West before the twelfth-century translation movement, thanks to Chalcidius's fourth-century commentary.<sup>73</sup> This work teems with references to number as the basic unit of nature,<sup>74</sup> for example, in its description of the creation of the world:

So god placed water and air between fire and earth, and made them so far as possible proportional to one another, so that air is to water as water is to earth; and in this way he bound the world into a visible and tangible whole. So by these means and from these four constituents the body of the universe was created to be at unity owing to proportion; in consequence it acquired concord, so that having once come together in unity with itself it is indissoluble by any but its compounder.<sup>75</sup>

Thus, in the *Timaeus*, number was more than just an abstract concept: it formed the building blocks from which the world, and everything in it, was created. Ancient Greek number theory was passed down to the High Middle Ages through late Antique and early medieval philosophers such as the Neopythagorean Nichomachus of Gerasa (first or second century CE), Augustine, and Macrobius (fifth century CE). Nichomachus, in his *Introduction to Arithmetic*, stated:

All that has by nature with systematic method been arranged in the universe seems both in part and as a whole to have been determined and ordered in accordance with number, by the forethought and the mind of Him that created all things; for the pattern was fixed, like a preliminary sketch, by the domination of number pre-existent in the mind of the world-creating God, number conceptual only and immaterial in every way, but at the same time the true and the eternal essence, so that with reference to it, as to an artistic plan, should be created all these things, time, motion, the heavens, the stars, all sorts of revolutions.<sup>76</sup>

As early as the first or second century CE, then, intellectuals were combining ancient Greek numerology with Christian theology, ascribing a central role to numbers in the Creation. Augustine, in Book XI of his *City of God* (completed by 426), discusses the perfection of the number six in relation to God's creation of the

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<sup>73</sup> On the *Timaeus* in the Middle Ages see Tullio Gregory, 'The Platonic Inheritance', in *A History of Twelfth-Century Western Philosophy* ed. Peter Dronke (Cambridge: Cambridge University Press, 1988), pp. 54-80.

<sup>74</sup> Christiane L. Joost-Gaugier, *Measuring Heaven: Pythagoras and His Influence on Thought and Art in Antiquity and the Middle Ages* (Ithaca, NY and London: Cornell University Press, 2006), pp. 117-118.

<sup>75</sup> Plato, *Timaeus* V:32, in *Plato: Timaeus and Critias* trans. H. D. P. Lee (Harmondsworth: Penguin, 1971), p. 44.

<sup>76</sup> Nichomachus of Gerasa, *Introduction to Arithmetic* Intro. I.vi.1, trans. Martin D'Ooge [University of Michigan Studies, Humanistic Series, 16] (New York: MacMillan, 1926). Quoted in Schrenk, 'God as Monad', p. 5.

world in six days. He then discusses the importance of numerology to the study of the Bible, using a quote from the Book of Wisdom 11:20 to illustrate his point:

For six is the first number which is the sum of its parts, that is of its fractions, the sixth, the third and the half; for one, two and three added together make six ... This point seemed worthy of brief mention to show the perfection of the number six, as the first number, as I have said, which is made up by the sum of its parts, and in this number God brought his works to complete perfection. Hence the theory of number is not to be lightly regarded, since it is made quite clear, in many passages of the holy Scriptures, how highly it is to be valued. It was not for nothing that it was said in praise of God, 'You have ordered all things in measure, number and weight'.<sup>77</sup>

Augustine, too, links numbers with God and the Creation. His near-contemporary Macrobius, in his commentary on Cicero's *Dream of Scipio*, states:

The monad, the beginning and end of all things, yet itself not knowing a beginning or ending, refers to the supreme God, and separates our understanding of him (the One, without number) from the number of things and powers following ... It is also that Mind which, unaware of the changes of time, is always in one time, the present ... Then, too, by giving a little thought to the matter, you will find the monad refers to the Soul. Indeed, the Soul is free from contamination with anything material, owing itself only to its Creator and to itself, and being endowed with a single nature.<sup>78</sup>

Macrobius, then, links the *monad* – i.e. the single unit – with both God and the human soul.

Intellectuals in the High Middle Ages were no less enthusiastic about numerology than their early medieval counterparts. For example, Thierry of Chartres (d. c. 1150), like Macrobius before him, identified God with the monad.<sup>79</sup> And, from the late eleventh to the early thirteenth centuries, there was an extensive revival of Augustinian study, with number theory at the centre of this revival.<sup>80</sup> Therefore, numerology was a strong current in twelfth-century philosophy and theology, at the point where this thesis begins.

<sup>77</sup> Augustine, *City of God* II:xi:30, trans. Bettenson, p. 465.

<sup>78</sup> Macrobius, *Commentary on the Dream of Scipio* 1.8-9, trans. William Harris Stahl (New York: Columbia University Press, 1952). Quoted in Schrenk, 'God as Monad', p. 6.

<sup>79</sup> Schrenk, 'God as Monad', p. 8.

<sup>80</sup> Russell A. Peck, 'Number as a Cosmic Language', in *Essays in the Numerical Criticism of Medieval Literature* ed. Caroline D. Eckhardt (Cranbury, NJ: Associated University Presses, Inc., 1980), p. 16.



The perceived importance and power of numbers did not stop with learned theology and philosophy. Turning to more occult matters, the majority of magic spells found in medieval manuscripts rely on numbers in some form for efficacy. These spells range from 'experiments' found in what Kieckhefer terms the 'common tradition' of magic. An 'experiment' in the Middle Ages referred to a phenomenon which could not be explained rationally, but had been proven to work.<sup>81</sup> Experiments in the common tradition of magic might be practised by everyone from monks and priests to village healers,<sup>82</sup> to texts of ritual magic which necessarily required literate practitioners.<sup>83</sup> In terms of the 'common tradition', one might, for example, have to repeat a particular word or phrase a certain amount of times for the spell to be effective, such as a prescription for a skin disease from Bald's *Leechbook*, an Anglo-Saxon book of medicine compiled sometime in the ninth century, which includes the instruction to spit three times as part of the spell.<sup>84</sup> Other spells called for a certain number of items to be used in their operations, such as a twelfth-century ritual for barren soil. This involves taking four clumps of earth from four sides of affected land, before the clumps are mixed with other ingredients, Latin words are recited over them, and they are taken to church, where four masses are sung over them.<sup>85</sup> The efficacy of magic spells depends on instructions being followed to the letter, and so the number of repetitions or particular items in a spell was an important element of the ritual. Number, then, had a strong link with occult practices, as well as with mainstream Christian philosophy, and this goes some way to explaining the appeal of the numerical element of the 'Sphere' to its medieval copyists and readers.

#### Medieval theories of proper names

The second operative element of onomancy is the proper name of the individual, which is the basis for the numerical total needed to make the prediction. Beliefs about the essence of names were the subject of a lively debate in ancient Greek philosophy. Plato set out his *Cratylus*, written c. 360 BC, as a discussion between the philosophers Socrates, Cratylus, and Hermogenes. This treatise was an

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<sup>81</sup> On 'experiments' see Catherine Rider, *Magic and Religion in Medieval England* (London: Reaktion Books, 2013), pp. 25-26 and 57.

<sup>82</sup> Kieckhefer, *Magic in the Middle Ages* p. 56.

<sup>83</sup> Kieckhefer, *Magic in the Middle Ages*, p. 153.

<sup>84</sup> Kieckhefer, *Magic in the Middle Ages*, p. 65.

<sup>85</sup> Kieckhefer, *Magic in the Middle Ages*, p. 58.

exploration of the natural versus conventional status of names. Hermogenes states the debate at the start of the work:

Cratylus, whom you see here, Socrates, says that everything has a right name of its own, which comes by nature, and that a name is not whatever people call a thing by agreement, just a piece of their own voice applied to the thing, but that there is a kind of inherent correctness in names, which is the same for all men, both Greeks and barbarians. So I ask him whether his name is in truth Cratylus, and he agrees that it is. "And what is Socrates' name?" I said. "Socrates," said he. "Then that applies to all men, and the particular name by which we call each person is his name?" And he said, "Well, your name is not Hermogenes, even if all mankind call you so." Now, though I am asking him and am exerting myself to find out what in the world he means, he does not explain himself at all; he meets me with dissimulation, claiming to have some special knowledge of his own about it which would, if he chose to speak it out clearly, make me agree entirely with him. Now if you could interpret Cratylus's oracular speech, I should like to hear you; or rather, I should like still better to hear, if you please, what you yourself think about the correctness of names.<sup>86</sup>

As it takes the form of a dialogue, Plato's own opinion is not known from the *Cratylus*. His stance was, however, interpreted by the Neoplatonists of the third century CE as being firmly on the side of names as natural: that is, a name holds something of its bearer's essence. While this was a hugely simplistic interpretation of Plato's view of names, it was nevertheless how many interpreted his work. The Stoics of the third century BCE were greatly influenced by the *Cratylus* and placed great importance on the power of names. Chrysippus (c. 279 – c. 206 BCE) is credited with having devised the word 'etymology', the study of the history of words. Essentially, the Stoics believed that each generation had a set of 'first speakers', endowed with divine knowledge, who made the first, or 'primary' sounds, which were used to make other words. Each word, then, was made up of sounds which were appropriate to it, and the investigation of the origin of words would reveal much about the things which were named.<sup>87</sup>

While Plato's stance on the nature of names was more complicated than names simply being 'natural', by the third century CE, Neoplatonic thought held that a name

<sup>86</sup> Plato, *Cratylus*, in *Plato in Twelve Volumes*, vol. XII, trans. Harold N. Fowler (Cambridge, MA: Harvard University Press; London, William Heinemann Ltd., 1921), pp. 383-384.

<sup>87</sup> On the Stoics and language see James Allen, 'The Stoics on the Origin of Language and the Foundations of Etymology', in *Language and Learning: Philosophy of Language in the Hellenistic Age: Proceedings of the Ninth Symposium Hellenisticum* ed. Dorothea Frede and Brad Inwood (Cambridge: Cambridge University Press, 2005) pp. 14-35; and A. A. Long, 'Stoic Linguistics, Plato's *Cratylus*, and Augustine's *De dialectica*', in *Language and Learning* ed. Frede and Inwood, pp. 36-55.

held something of the bearer in it. This idea was picked up by the Church Fathers. Origen (c. 184 – c. 254 CE), in discussing the Stoics, gave his own view on the natural character of names. On proper names, Origen stated in his *Contra Celsum*:

Now if by a special study we could show the nature of powerful names, some of which are used by Egyptian wise men, or the learned men among the Persian magi, or the Brahmans, or Samanaeans among the Indian philosophers, and so on according to each nation, and if we could establish that so-called magic is not, as the followers of Epicurus and Aristotle think, utterly incoherent, but, as the experts in these things prove, is a consistent system, which has principles known to very few; then we would say that the name Saboath, and Adonai, and all the other names that have been handed down by Hebrews with great reverence, are not concerned with ordinary created things, but with a certain mysterious divine science that is related to the Creator of the universe. It is for this reason that when these names are pronounced in a particular sequence which is natural to them, they can be employed for certain purposes; and so also with other names in use in Egyptian which invoke daemons who have power only to do certain particular things; and other names in Persian which invoke other powers, and so on with each nation. So also the names of daemons upon earth, which have possession of different localities, will be found to be related to the languages used in each respective locality and nation. A man, then, who has grasped a more profound understanding of these matters, even if only to a small extent, will take care to apply names correctly in their respective connexions, some in one case, some in another; lest he should be like those who mistakenly apply the name of God to lifeless matter, or degrade the name of goodness from the first cause or from virtue and beauty to the level of blind wealth and to the harmony of flesh and blood and bones that exists when we are in good health and vigour, and to supposed nobility of birth.<sup>88</sup>

Origen makes two important points about names in this passage: firstly, names are divinely inspired; and secondly, men must understand and use names in a correct fashion. Later in the same work Origen returns to the subject of names, and addresses the problem of the translation of names into other languages:

Accordingly, now we say also with regard to the nature of names that they are not arbitrary conventions of those who give them, as Aristotle thinks. For the languages in use among men have not a human origin, which is clear to those able to give careful attention to the nature of spells which were adapted by the authors of the languages in accordance with each different language and different pronunciation. We briefly discussed this question above when we said that if names whose nature it is to be powerful in some particular language are translated into another tongue they no longer have any effect such as they did with proper sounds. This phenomenon is also to be found with men's names. For if we translated the name of some man or other who from birth has had a name in the Greek language into the language of the Egyptians or Romans or some other nation, we would not bring about the experience or action which would happen if he were called

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<sup>88</sup> Origen, *Contra Celsum* I:24, trans. Henry Chadwick (Cambridge: Cambridge University Press, 1965), pp. 23-24.

by the name first given to him. Nor, if we translated into the Greek language the name of a man called in the first instance by a Roman name, would we effect what the spell is professed to do if the first name by which he was called is preserved.<sup>89</sup>

Using the example of names in translation, then, Origen believed that names are far more than Aristotelian arbitrary designators: that they hold some essence of the bearer.

Along with Origen, Basil of Caesarea (c. 330 - 379 CE) was the only other Church Father to discuss the nature of proper names.<sup>90</sup> In the 360s, Basil was engaged in a debate with the Anomoean Eunomius of Cyzicus (d. c. 393).<sup>91</sup> Eunomius held that names were purely divine, denying any human involvement in namegiving.<sup>92</sup> Basil argued against God as the absolute namegiver, saying that each proper name when read or spoken gave rise to a mental notion, which was the meaning of the name. The notion that arose correlated to a feature of the named thing, but not to its essence.<sup>93</sup> Despite their disagreement over the origin and nature of names, the essential point here is that both Eunomius and Basil saw names as much more than arbitrary designators.

Nearly three centuries after Basil and Eunomius's debate, Isidore of Seville wrote his enormously influential encyclopedia, *Etymologiae*, which sought to explain the nomenclature of everything in the material world. When discussing the origins of the names of Old Testament figures, Isidore states:

Many of the early humans take the origin of their names from conditions specific to them. Their names were imparted to them prophetically in such a way that they concord with their future or their previous conditions.<sup>94</sup>

Isidore, then, believed that the names of Biblical people were more than simply indicators: they held something of the bearer and could indicate something about their past or future. To illustrate this, he discusses Adam's naming of Cain: 'Cainan

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<sup>89</sup> Origen, *Contra Celsum* V:45, trans. Henry Chadwick (Cambridge: Cambridge University Press, 1965), pp. 299-300.

<sup>90</sup> Mark DelCogliano, *Basil of Caesarea's Anti-Eunomian Theory of Names: Christian Theology and Late-Antique Philosophy in the Fourth Century Trinitarian Controversy* (Leiden and Boston: Brill, 2010), p. 190.

<sup>91</sup> On Eunomius, see Richard Paul Vaggione, *Eunomius of Cyzicus and the Nicene Revolution* (Oxford: Oxford University Press, 2000).

<sup>92</sup> DelCogliano, *Basil of Caesarea*, p. 45.

<sup>93</sup> DelCogliano, *Basil of Caesarea*, p. 185.

<sup>94</sup> Isidore of Seville, *Etymologiae* VII.vi.1, trans. Barney et al, p. 162.

means 'lamentation' or 'possession of those', for as Cain means 'possession', so the derivative name, which is Cainan, forms 'possession of those'.<sup>95</sup> Mark Amsley, in analysing Isidore's attitude to the origin of names, points out that the etymology of the name Cain accounts for events that happened after the name was bestowed: but these were divinely inspired at the naming.<sup>96</sup> Even though he was discussing Biblical names specifically, Isidore promulgated the notion that nomenclature could be linked to future events in the lives of individuals: an idea which can be linked to the operative procedure of the 'Sphere'.

These theories about the nature of proper names did not end with Isidore. Several important theologians and scholars of the later Middle Ages continued the debate. To Peter Abelard (1079 – 1142), one of the earliest, and most significant, scholastics active in twelfth-century Paris, names were much more than simply signifiers, but were originally bestowed according to the natures or characteristics of things:

Yet any names of any existing things, insofar as is in their power, generate understanding rather than opinion, since their inventor meant to impose them in accordance with certain natures or characteristics of things, even if he did not know how to think out the nature or characteristic of the thing.<sup>97</sup>

About 200 years later, John Duns Scotus (c. 1266 – 1308), scholar, theologian and philosopher active at both Paris and London, took a more subtle stance than Abelard as to the nature of proper names, but still hinted at some understanding on the part of the name giver:

...signifying presupposes understanding in the sense that everything signified has already been understood, without which a spoken utterance would not have been imposed on it. But after it is imposed, an utterance can signify that to which it was imposed, even though it is [subsequently] understood by no one.<sup>98</sup>

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<sup>95</sup> Isidore of Seville, *Etymologiae* VII.vi.12, trans. Barney et al, p. 162.

<sup>96</sup> Mark Amsley, *Etymology and Grammatical Discourse in Late Antiquity and the Early Middle Ages* [Studies in the History of the Language Sciences 44] (Amsterdam and Philadelphia: John Benjamin's, 1989), p. 162.

<sup>97</sup> Peter Abelard, *Glosses on Porphyry*, trans. in Paul Spade, *Five Texts on the Mediaeval Problem of Universals: Porphyry, Boethius, Abelard, Duns Scotus, Ockham* (Indianapolis: Hackett, 1984), p. 46.

<sup>98</sup> John Duns Scotus, *Quaestiones in libros Perihermenias Aristotelis* q. 3 ad. 4, ed. R. Andrews, G. Etzkorn, G. Gál, R. Green, T. Noone, R. Plevano, A. Traven and R. Wood (Washington, DC: Franciscan Institute, 2004). Translated in Margaret Cameron, 'Meaning: Foundational and Semantic Theories', in *The Oxford Handbook of Medieval Philosophy* ed. John Marenbon (Oxford: Oxford University Press, 2012), p. 349.

Later still, John Buridan (c. 1300 – c. 1358), a French priest and theologian, based his theory of names on the method in which they are applied to individuals:

... concerning the terms 'Socrates' and 'Plato' I say that they are truly and properly individual terms, for the name 'Socrates' was imposed on this man by means of pointing [to him], as for example [by saying that] let this boy be named by the proper name 'Socrates'. For that name imposed in this way cannot apply to anybody else, except as a result of a new imposition, but there will be equivocation.<sup>99</sup>

The debate on the nature of proper names, then, was as active in the high and later Middle Ages as it had been in Antiquity. Late medieval philosophers may have taken different viewpoints on this subject, but all three quoted here, Abelard, Duns Scotus, and Buridan, spanning a period of over 200 years, saw names as something more than mere Aristotelian signifiers.

As well as the philosophy of nomenclature present in ancient and medieval thought, anthropological studies have illustrated that beliefs surrounding the non-arbitrary nature of names are prevalent across a wide range of cultures. For example, the Zafaminary people of Madagascar name girls eight days after birth, and boys seven days. The umbilical cord is wound around a piece of dried bamboo which is burned, which 'illuminates' the child. This is accompanied by a blessing repeated six times meaning 'blessed be thy name'. A name is chosen and a diviner-astrologer is consulted, who ascertains if the name is suitable or not. On some occasions, the diviner will even suggest an alternative.<sup>100</sup> The Tukanoans of the north-west Amazon region have three kinds of personal names: a spirit name, a nickname, and foreigners' names. Each name is believed to embody a certain characteristic of the bearer.<sup>101</sup> In Mongolian culture, each person is bestowed with a sole name, which is usually a word with a meaning in day-to-day language. It is important that this name should not be the same as anyone else known to the name-givers. Sometimes, these names are chosen by picking a name out of a pot at random. The meaning of this name is then said to set out the fate of the individual.<sup>102</sup>

<sup>99</sup> John Buridan, *Quaestiones in Porphyrii Isagogen* 9, 159-162, in Jan Buridan, *Kommentarz do Isagogi Porfiriusza* ed. R. Tatarzynski (Warsaw: Przegląd Tomistyczny, 1986). Translated in Cameron, 'Meaning', p. 351.

<sup>100</sup> Maurice Bloch, 'Teknomyny, and the Evocation of the "Social" Among the Zafimaniry of Madagascar', in *The Anthropology of Names and Naming* ed. Gabriele vom Bruck and Barbara Bodenhorn (Cambridge: Cambridge University Press, 2006), p. 101.

<sup>101</sup> Stephen Hugh-Jones, 'The Substance of Northwest Amazonian Names', in *Anthropology of Names* ed. vom Bruck and Bodenhorn, p. 79.

<sup>102</sup> Caroline Humphrey, 'On Being Named and Not Named: Authority, Persons and Their Names in Mongolia', in *Anthropology of Names* ed. vom Bruck and Bodenhorn, pp. 159-165.

Antique and medieval sources, and anthropological studies, point towards a strong current of belief across different times and cultures about the non-arbitrary nature of proper names. These notions go some way to explaining why the 'Sphere', far from being seen merely as superstitious by everyone who encountered it, might be regarded as an efficacious way of predicting an individual's future.

#### Medieval lunar astrology

The third and final operative element of the 'Sphere' is the addition of numbers representing lunar and planetary data. This component does not need much discussion here, as the perceived effect of the heavens on the human body and all matters of terrestrial life in the Middle Ages is well known. The Neoplatonic concept of macrocosm and microcosm, an all-encompassing mode of thought throughout the Middle Ages, held that the movement of the heavens had influence over earthly matters. As the closest 'planet' to earth, the moon was regarded as the mediator and controller of the human body. The addition of planetary data, too, was in concordance with medieval medicine's doctrine of propitious and non-propitious days for performing treatment such as bloodletting,<sup>103</sup> and the Hippocratic and Galenic concept of the 'critical days' of acute diseases.<sup>104</sup> Additionally, in the later Middle Ages there existed a complex, sophisticated medical astrology which was the domain of the learned physician, who drew up nativities and elections to make all kinds of prognostications regarding the health of his patients.<sup>105</sup> The addition of an apparently arbitrary number to represent the day of the moon and planetary weekday is explained by both the central importance of the moon, the concept of lucky and unlucky days, and the importance of astrology in matters of sickness and health.

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<sup>103</sup> See e.g. Skemer, 'Armīs gunfe', pp. 75-106.

<sup>104</sup> See e.g. Cornelius O'Boyle, *Medieval Prognosis and Astrology: a working edition of the Aggregationes de crisi et criticis diebus* (Cambridge: Wellcome Unit for the History of Medicine, 1991).

<sup>105</sup> See e.g. Roger French, 'Astrology in Medical Practice', in *Practical Medicine from Salerno to the Black Death* ed. Luis García-Ballester, Roger French, John Arrizabalaga and Andrew Cunningham (Cambridge: Cambridge University Press, 1994), pp. 30-59 and *Astro-medicine: Astrology and Medicine, East and West* ed. Anna Akasoy, Charles Burnett and Ronit Yoeli-Tlalim [Micrologus Library 25] (Florence: SISMEL, 2008).

## Diagrams in the Middle Ages

The remainder of this chapter will make some observations about the status of the 'Sphere' as a diagram, to place it in the wider context of medieval visual culture. It aims to show that the 'Sphere' was above all a diagram, rather than a text. That is to say, the function fulfilled by its (usually) circular shape in medieval manuscripts is equally important as, if not superior to, its textual accompaniment. The scholarship carried out thus far on diagrams, as distinct from images or illustrations, in the Middle Ages has either been very general, or extremely specific.<sup>106</sup> Indeed, one only has to examine various manuscript catalogues to gauge the perceived importance of diagrams as opposed to text: more often than not, diagrams are simply not included in catalogues, as until fairly recently they were not seen as worthy of mention. It is only in recent decades that diagrams present in manuscripts have begun to be included in library catalogues and even critical editions of medieval texts, as scholars have begun to realise that the diagrams are as integral as the text to the treatise as a whole.

The only lengthy work known to me dedicated to medieval diagrams is Philippa Semper's very detailed PhD thesis, which ambitiously focuses on the diagrams present in manuscripts from throughout the Middle Ages.<sup>107</sup> Madeline Caviness's seminal 1983 article skilfully demonstrates the symbiotic relationship of Romanesque and Gothic art with the Platonic diagrams present in medieval manuscripts, by recourse to the works of Theophilus (fl. s. xii) and Richard of St.-Victor (d. 1173).<sup>108</sup> John North, Michael Evans, and James Franklin have also produced useful articles on diagrams in general.<sup>109</sup> Additionally, there are several examples of much more specific work on particular kinds of diagram in the Middle

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<sup>106</sup> Philippa Semper, 'Diagrams in English Medieval Manuscripts' (Unpublished PhD thesis, University of Exeter, 1994), p. 16.

<sup>107</sup> Semper, 'Diagrams in English Medieval Manuscripts'.

<sup>108</sup> Madeline H. Caviness, 'Images of Divine Order and the Third Mode of Seeing', *Gesta* 22:2 (1983), pp. 99-120.

<sup>109</sup> John North, 'Diagram and Thought in Medieval Science', in *Villard's Legacy: Studies in Medieval Technology, Science and Art in Memory of Jean Gimpel* ed. Marie-Therese Zenner (Aldershot: Ashgate, 2004), pp. 265-287; Michael Evans, 'The Geometry of the Mind', *Architectural Association Quarterly* 12:4 (1980), pp. 32-55; and James Franklin, 'Diagrammatic Reasoning and Modelling in the Imagination: The Secret Weapons of the Scientific Revolution', in *1543 and all that: Image and Word, Change and Continuity in the Proto-Scientific Revolution* ed. Guy Freeland and Anthony Coronos (London: Kluwer, 2000), pp 53-115.



Ages, most notably Barbara Obrist's article on wind schemata,<sup>110</sup> and Bruce Eastwood and Gerd Graßhoff's work on planetary diagrams.<sup>111</sup> Despite these isolated works, however, the historiography of medieval diagrams is extremely patchy, and there is to date no published monograph or anthology solely dedicated to diagrams in medieval manuscripts.

There are very few references to the 'Sphere' in the scholarship on diagrams. This is not especially surprising – the 'Sphere' is just one of many diagrams that circulated in medieval manuscripts. Caviness's article reproduces two 'Spheres' in early medieval manuscripts. The first is the 'Tiberius Psalter', now London, British Library MS Cotton Tiberius C VI, f. 6v, produced in eleventh-century Winchester, whose diagram presents the fortunate remainders with the image of Christ as 'Vita', and the perilous remainders with the image of the Devil as 'Mors' (discussed in chapter 3).<sup>112</sup> The second example reproduced is that in Vienna, Österreichische Nationalbibliothek MS 67, f. 174r, a twelfth-century miscellany which contains a 'Sphere' with a circular diagram associating life with the heavens and death with the earth. However, the analysis of these two diagrams by Caviness is limited to a short paragraph, concluding only that, 'both of these figures impress us with their order and symmetry, and both present, by graphic means, the Janus-faces of good and evil'.<sup>113</sup> Edson, too, in her work on medieval maps, briefly refers to the 'Sphere' as one of several round diagrams in the Middle Ages.<sup>114</sup> Despite her lengthy discussions of circular diagrams, Semper only refers to the 'Sphere' in her appendices when it occurs in manuscripts alongside the diagrams which she discusses.<sup>115</sup> This is the extent, then, of the discussion of the 'Sphere' in the current historiography on diagrams in the Middle Ages as a whole.

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<sup>110</sup> Barbara Obrist, 'Wind Diagrams and Medieval Cosmology', *Speculum* 72:1 (1997), pp. 33-84.

<sup>111</sup> Bruce Eastwood and Gerd Graßhoff, *Planetary Diagrams for Roman Astronomy in Medieval Europe, ca. 800-1500* [Transactions of the American Philosophical Society 94:3] (Philadelphia: American Philosophical Society, 2004).

<sup>112</sup> London, British Library MS Cotton Tiberius C VI, f. 6v. On date and provenance, see Charles Burnett, 'The Prognostications of the Eadwine Psalter', in *The Eadwine Psalter: Text, Image and Monastic Culture in Twelfth-Century Canterbury* ed. Margaret Gibson, T. A. Heslop and Richard W. Pfaff (London: The Modern Humanities Research Association, 1992), p. 167.

<sup>113</sup> Caviness, 'Divine Order', p. 103.

<sup>114</sup> Evelyn Edson, *Mapping Time and Space: How Medieval Mapmakers Viewed Their World* (London: The British Library, 1997), p. 70.

<sup>115</sup> Semper, 'Diagrams in English Medieval Manuscripts', pp. 223, 240.

The relative dearth of diagrammatic analysis in scholarship carried out on the 'Sphere' specifically is much more puzzling, however. Chardonnens makes the point that the attraction between these devices and computistical tables was on account of an attraction between diagrams, using Oxford, St. John's College MS 17 as an example (see chapter 3).<sup>116</sup> Wallis, too, acknowledges what she refers to as the 'accretive attraction' between medical texts including the 'Spheres' and computus in the early Middle Ages, but ascribes this attraction to the time-keeping element of both computus and the 'Sphere' rather than any association between circular diagrams (see chapter 3).<sup>117</sup> Láng includes a useful discussion on divinatory diagrams, including the 'Sphere'. He reaches the common-sense conclusions that the circular form of such diagrams, of which the Sphere was the most common, was useful as representative of the macrocosm and microcosm of medieval philosophy, and that the circular shape of the diagram helped to simplify the process of locating the answer.<sup>118</sup> This is the extent to which the main works on the 'Sphere of Life and Death' discuss its status as a diagram and its attraction to other texts containing circular diagrams.

It is necessary at this point to define the word 'diagram'. There have been many divergent definitions, and this thesis will follow that of Semper, 'a diagram is an essentially linear demonstration figure in which form is subordinate to function'.<sup>119</sup> It is beyond doubt that the 'Sphere' is a diagram, rather than an image or illustration: it does not exist to show what something looks like, as, for example, the figures in the margins of medieval manuscripts of Euclid's *Elements*, since these merely depict various geometric shapes.<sup>120</sup> Neither does it tell the reader how to do something, such as the illustrations of surgical instruments and graphic depictions of human anatomy in manuscripts of the surgical treatise *Fistula in ano* by John of Arderne (1307 – 1392).<sup>121</sup> The 'Sphere' is a diagram because it provides answers to particular instructions, or simplifies complex ideas, in a format easy to understand and 'read'. Moreover, the text which accompanies the 'Sphere' diagram is

<sup>116</sup> Chardonnens, *Anglo-Saxon Prognostics*, pp. 31-34.

<sup>117</sup> Wallis, 'Medicine in Medieval Calendar Manuscripts', p. 106.

<sup>118</sup> Láng, *Unlocked Books*, pp. 136-138.

<sup>119</sup> Semper, 'Diagrams in English Medieval Manuscripts', p. 7.

<sup>120</sup> On Euclid's *Elements* see Menso Folkerts, *Euclid in Medieval Europe: Completely revised version of 'Euclid in Medieval Europe'* [Questio de rerum natura, II, Winnipeg, 1989] (Aldershot: Ashgate Variorum, 2005).

<sup>121</sup> On the illustrated manuscripts of John of Arderne, see Peter Murray Jones, 'Staying with the Programme: Illustrated Manuscripts of John of Arderne, c. 1380 – c. 1550', in *English Manuscript Studies 1100-1700 X: Decoration and Illustration in Medieval English Manuscripts* ed. A. S. G. Edwards (London: The British Library, 2002), pp. 204-227.

subordinate to it, since it tells the operator how to use the diagram. In his discussion of medical illustrations, Jones points out that instances in which texts become inscribed in images indicate that the words are inferior to the illustration:<sup>122</sup> and this is precisely the case in three related Spheres in the late medieval English corpus, produced between the end of the fourteenth and mid-fifteenth centuries. Oxford, Bodleian Library MS Ashmole 391, part V, f. 8r (figure 2), Oxford, Bodleian Library MS Ashmole 789, f. 367r (figure 3) and Oxford, Bodleian Library MS Savile 39, f. 10v (figure 4) are all luxury astrological manuscripts, containing the *Kalendarium* of John Somer (d. c. 1409) as well as 'Spheres'.<sup>123</sup> As demonstrated by Linne Mooney, these three manuscripts belong to the same group of Somer calendars: the illustrations and hand are nearly identical, as well as the number-letter correlations in each device. In the 'Sphere' redaction in all three manuscripts, the 'Collige ...' poem (discussed in chapter 3) is written in the outer rim of the diagram.<sup>124</sup> The lion's share of the 'Spheres' in the late medieval English corpus keep text and diagram separate, but the fact that the text works just as well contained within the 'Sphere' in these instances neatly illustrates its status as a diagram above all else.

Diagrams of all kinds have their roots in Antiquity, and were passed down to the later Middle Ages in a host of early medieval manuscripts, courtesy of several popular works, the most notable including Chalcidius's aforementioned commentary on the *Timaeus*, Macrobius's fifth-century commentary on Cicero's *Dream of Scipio*, Isidore of Seville's *Etymologiae* and *De natura rerum*, and Byrhtferth of Ramsey's (c. 970 - 1020) computistical manual *Enchiridion*.<sup>125</sup> It was at the start of the twelfth century that diagrams began to develop many new forms, and became increasingly popular.<sup>126</sup> Of the different kinds of diagrams used in late medieval England, the circular diagram was one of the commonest and most useful.<sup>127</sup> In essence, the circle was a form that could be manipulated to explain quickly and to simplify a host of different ideas that would be much harder to convey textually.

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<sup>122</sup> Peter Murray Jones, 'Image, Word and Medicine in the Middle Ages', in *Visualizing Medieval Medicine And Natural History, 1200-1550* ed. Jean Ann Givens, Karen Reeds and Alain Touwaide (Aldershot: Ashgate, 2006), p. 4.

<sup>123</sup> Oxford, Bodleian Library MS Ashmole 391, part V, f. 8r; Oxford, Bodleian Library MS Ashmole 789, f. 367r; and Oxford, Bodleian Library MS Savile 39, f. 10v.

<sup>124</sup> Linne R. Mooney, *The Kalendarium of John Somer* (Athens: University of Georgia Press, 1998), p. 51.

<sup>125</sup> For a very detailed discussion of the tradition of diagrams in these works as well as many other early medieval texts see Semper, 'Diagrams in English Medieval Manuscripts'.

<sup>126</sup> F. Saxl, 'A Spiritual Encyclopedia of the Later Middle Ages', *Journal of the Warburg and Courtauld Institutes* 5 (1942), p. 108.

<sup>127</sup> Evans, 'The Geometry of the Mind', p. 42.

That the 'Sphere' diagram did not necessarily need to be circular in order to convey the information within it is evidenced by the fact that it could and did come in many different shapes, especially in the early Middle Ages. Therefore why did this circular form become the most favoured in the later Middle Ages? This must have been at least partly due to the deeply entrenched symbolism associated with the spheres, wheels and circles, which appear so frequently in medieval manuscripts, art and architecture. For example, circular diagrams were used in astrological and astronomical texts to demonstrate the shape of the universe and earth, the orbits of the planets, the divisions of the heavens and many other celestial concepts. The T-O maps and computistical diagrams common in this period were also circular in shape. The form of many wind and tidal diagrams was also circular: wind diagrams were given the name 'wind roses' for this reason. Above all, with the rise of scholasticism in the high Middle Ages, circular diagrams were applied in all kinds of ways to theology and philosophy to elucidate and enhance the text.<sup>128</sup>

Circular forms appeared in medieval art and architecture, too, from the great rose windows of many Romanesque and Gothic buildings such as the great cathedrals at Canterbury and Lincoln; to the mandorlas, i.e. *vesica piscis* shapes, formed from the intersection of two circles, which surround images of Christ and the Virgin in the Christian art of the Middle Ages; to the round haloes that encircle the heads of Christ and the saints. Jurgis Baltrušaitis skilfully demonstrated that between the ninth and twelfth centuries, religious art became inextricably linked to, and influenced, scientific diagrams precisely because of the circular shapes that appear in both.<sup>129</sup> Thus, the multiple associations of spherical and round diagrams, drawings and architecture in the later Middle Ages cannot be overemphasised.

As well as these positive connotations in medieval manuscripts, art and architecture, however, circular diagrams could also have negative associations. In addition to the 'Sphere', circles were integral to a variety of other magic and divinatory texts, either in diagrammatic form on the page or drawn on the floor as a magic circle. Circular diagrams contained within occult texts are found in manuscripts of learned texts of ritual magic, such as the *Ars Notoria*;<sup>130</sup> as an

<sup>128</sup> Semper, 'Diagrams in English Medieval Manuscripts', p. 169.

<sup>129</sup> M. Jurgis Baltrušaitis, 'L'image du monde céleste du IXe au XIIe siècle', *Gazette des Beaux-arts* 20 (1938), pp. 137-48.

<sup>130</sup> Michael Camille, 'Visual Art in Two Manuscripts of the *Ars Notoria*', in *Conjuring Spirits: Texts and Traditions of Medieval Ritual Magic* ed. Claire Fanger (University Park: The Pennsylvania State University Press, 1998), pp. 110-139.

element of divinatory texts such as those of geomancy and fortune-telling found, along with 'Spheres', in the late fourteenth-century Oxford, Bodleian Library MS Digby 46; and throughout whole manuscripts with varied occult contents of magic and divination, for example the fifteenth-century necromancer's manual of German provenance, Munich Clm 849, edited by Kieckhefer.<sup>131</sup>

Munich Clm 849 contains several texts which require the construction of a magic circle, the second kind of circular form associated with ritual magic and necromancy in the Middle Ages. There was some ambiguity among contemporaries about whether the magic circle gave power to the operator over the spirits and demons he conjured, or whether it protected the operator from these spirits. Kieckhefer is inclined towards the former, saying that the latter interpretation of the magic circle probably arose from moralisers against magic such as Caesarius of Heisterbach (c. 1180 – c. 1240) who wanted to impress on those they instructed the dangers of convoking spirits.<sup>132</sup> Either way, there was a strong association of circles drawn on the ground with demonic magic, which could give anything with a circular form illicit connotations. Its circular form could even be the reason for the naming of the 'Sphere' as 'necromancy' in Gratian's *Decretum* (discussed in chapter 5). Thus, on the one hand, its circular shape could place the 'Sphere' in the orthodox world of scholastic diagrams, maps, and *computus*, or associate it with the numerous round forms found in medieval art and architecture. On the other hand, its round shape could equally place it in the illicit context of ritual magic and necromancy. It is here that a paradox in the associations of the 'Sphere' with other diagrams is found: its circular shape could either add legitimacy to this device, or give it a decidedly illicit flavour.

There are several reasons why circular diagrams were so appealing and useful in the later Middle Ages. The first is mnemonic. Simply put, information contained within a diagram or even associated with a particular picture is easier to memorise than text.<sup>133</sup> Mary Carruthers points out that the origin of the English term 'learning by rote', which made its first appearance in the fourteenth century, may be the Latin

<sup>131</sup> Kieckhefer, *Forbidden Rites*, pp. 170-185.

<sup>132</sup> Kieckhefer, *Forbidden Rites*, p. 175.

<sup>133</sup> On medical illustrations as mnemonics see e.g. Anne Van Arsdall, 'Reading Medieval Medical Texts with an Open Mind' in *Textual Healing: Essays on Medieval and Early Modern Medicine* ed. Elizabeth Lane Furdell (Leiden and Boston: Brill, 2005), p. 21.

word *rota*, meaning circle or wheel.<sup>134</sup> The second appeal of circular diagrams in the later Middle Ages was their value as symbols of a wide range of concepts: the Platonic-Pythagorean round universe; various temporal cycles such as seasons or years; and man's inexorable life cycle. Another important role of circular diagrams was their ability to simplify very complex ideas. By being laid out concentrically or radially, circular diagrams could condense difficult concepts into an easily understandable and memorisable visual format. For example, the relationship between the four humours and four qualities was aptly represented by overlapping circles: each humour shared two qualities, and therefore such a diagram could neatly demonstrate this.

How do these main uses and appeals of the circular diagram in the Middle Ages relate to the 'Sphere'? Mnemonically, the circular shape made the diagram easy to recall. It was much easier to memorise the remainders signifying 'life' or 'death' by associating them with a particular column within the diagram. That the 'Sphere' was, at least sometimes, intended to be memorised, is evidenced not only by the use of a diagram but also by the frequent appearance alongside the diagram of succinct instructions in verse form: the poem beginning 'Collige...'. Verses that appear with scientific texts in the Middle Ages were not so much intended for entertainment as they were *aides-mémoires*. Therefore, a practitioner who did not have his or her copy of the 'Sphere' and its text to hand could work out the patient's fate from memory if necessary. Granted, s/he would also have to know the number-letter correlations, but these were also often contained within the diagram.

A final salient point about the 'Sphere' diagram relates to its status as a symbol of the round universe. From the very beginning of the Middle Ages, circa 400 CE, the universe was conceived of in the Greco-Roman worldview, that is, three spherical layers of elements around the central orb of the earth. This Platonic idea of a geocentric universe continued well into the later Middle Ages and beyond. As already discussed, round diagrams fulfilled symbolic, representative functions as well as conveying information, and the 'Sphere' is no exception to this. Six manuscripts within the corpus contain 'Spheres' which utilise, as well as the usual information, the words *super terram* (above the earth) and *sub terram* (below the earth) attached to the top and bottom hemispheres respectively. On one level, this

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<sup>134</sup> Mary J. Carruthers, *The Book of Memory: A Study of Memory in Medieval Culture* (Cambridge: Cambridge University Press, 1990), p. 252.

labelling associates the concept of 'life' with that which is above the earth, i.e. heaven, or God; and 'death' with that which is below the earth, i.e. hell, or the Devil. This is linked to the early medieval examples of the diagram with the representations of 'Vita' and 'Mors' as God and the Devil (see chapter 3). On another level, the inscriptions *super terram* and *sub terram* link the round shape of the diagram with the manifold circular representations of the universe in medieval manuscripts.

London, British Library MS Additional 15236, written c. 1300, contains a plethora of medical and scientific tracts. That this manuscript was intended for use cannot be doubted: the hand is poor, the parchment low-quality, and the medical tracts are of a mostly practical nature: the names of herbs, quick divinatory spells, bloodletting tracts and lunar tables. Additionally, there is a 'Sphere' ff. 108r-108v (figures 5:a-b and appendix I:3). As well as containing the usual labelling of the hemispheres – 'vita longa', 'mors cita', etc., this 'Sphere' also has the 'super terram' and 'sub terior' labels<sup>135</sup>. A second of two 'Spheres' in London, British Library MS Sloane 1620 on f. 65v, written at the very end of the fifteenth century, too, utilises the 'super terram' and 'sub terram' labels, above and below the diagram respectively.<sup>136</sup>

The first of two 'Spheres' in London, British Library MS Egerton 843, f. 32r also includes, inscribed around its outermost rim, the Greek words for the outcomes followed by their Latin translations: 'ypergia: super terram vivens', 'zoemegale: vita longa', 'mesotis: medietas', 'thanatos: mors longa', 'ypogeia: subterior'; 'tanathos megas: mors cita', 'mesotis: medietas', and 'zoe micra: vita minor' (figures 6:a-b and appendix I:4)<sup>137</sup>. The exact same wording is present in the outer rim of the 'Sphere' which appears on its own in the composite manuscript Oxford, Bodleian Library MS Rawlinson D 893, ff. 34r-v (figures 7:a-b and appendix I:5).<sup>138</sup> And the 'Sphere' in the late thirteenth-century manuscript Cambridge, Gonville and Caius College Library MS 225/240, pp. 143-144 also incorporates these ideas about the heavens and earth into its outcomes in the outer rim of the diagram, 'De celo, longa mors, media mors, de terra, Deus cito sanitas, media sanitas' (figures 8 a-b and appendix I:6).<sup>139</sup> As well as being inscribed outside the diagram and in its outer circle, words

<sup>135</sup> London, British Library MS Additional 15236, ff. 108r-v.

<sup>136</sup> London, British Library MS Sloane 1620, f. 65v. I am very grateful to Marigold Norbye for help in closely dating this section of the manuscript.

<sup>137</sup> London, British Library MS Egerton 843, f. 32r.

<sup>138</sup> Oxford, Bodleian Library MS Rawlinson D 893, f. 34r.

<sup>139</sup> Cambridge, Gonville and Caius College Library MS 225/240, p. 143.

signifying 'heaven' and 'earth' also appear in the central hemisphere of the 'Sphere' diagram. Finally, Oxford, Bodleian Library MS Digby 29, a fifteenth-century medical miscellany, contains three 'Sphere' diagrams. The first, on f. 193r, contains, in the top hemisphere, 'De celo vita patebit', and in the bottom, 'De terra mors patebit' (figures 9:a-c and appendices I:7-8).<sup>140</sup>

These examples of 'Spheres' which associate heavens with life, and earth with death, may not all come from a single original source. Firstly, is the difference in wording, for example, *celo* and *super terram* both meaning 'heavens', and the different placing of these labels within or next to the diagram, suggests that perhaps it was not just one scribe who made this link between round diagrams. It is possible that more than one person originally associated the circular shape of the 'Sphere' and Platonic ideas about the universe independently. This is perhaps testament to the strength of the associations between the 'Sphere' and the representation of the round universe.

### Conclusion

Antique and medieval treatises of philosophy and theology, as well as anthropological studies, have thrown the perceived power of names, numbers and the heavens in Antiquity and the Middle Ages into sharp focus. Medieval number theory, based heavily on Platonic philosophy, held that number was the basic unit of nature, and Augustinian theology combined these Platonic ideas with Biblical notions about the sanctity of numbers. The ancient debate about names, which began with Plato's *Cratylus*, persisted into late Antiquity, with Origen and Basil of Caesarea both promulgating the idea that names were much more than arbitrary designators. Moreover, in discussing the names of Old Testament figures, Isidore of Seville stated that a name might affect the future of its bearer. The lunar and planetary element used in the operation of the 'Sphere' also conformed to medieval notions of natural philosophy.

The 'Sphere' is above all a diagram. Symbolically, it is clear why the circular form of the 'Sphere' was by far the most popular in the later Middle Ages. The circle was symbolic of cycles, including the human life-cycle, and so its circular shape represented exactly what the 'Sphere' claimed to predict: life and death. Its circular

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<sup>140</sup> Oxford, Bodleian Library MS Digby 29, f. 193r,



shape also gave it added authority and orthodoxy, as it provided associations with the wide range of texts containing circular diagrams in the Middle Ages that were used at universities, in monasteries and by medical practitioners. However, this round shape could also have negative connotations, associating the 'Sphere' with diagrams and practices of ritual magic. Visually, then, the 'Sphere' straddled the realms of both the licit and the illicit. The origins of the 'Sphere' in Antiquity, and its early medieval context, will now be established.

## Chapter 3

### The Antique and the early medieval background, c. 400 – c. 1125

#### Introduction

This chapter will discuss the origins of the ‘Sphere of Life and Death’ in Antiquity and establish a typology of ‘Sphere’ texts found in Latin manuscripts from the period c. 800 – c. 1125. It will then deal with the translation of the ‘Sphere’ from Greek, and possibly other languages, into Latin, which took place sometime before the ninth century. The problems in translating onomantic texts from an alphabet such as Greek, for which every letter had a corresponding number, into Latin will then be discussed. The computistical context of the early medieval ‘Sphere’ will be examined, and it will be demonstrated that the ‘Sphere’ had much in common with these of astronomical time-measurement, in terms of both content and aesthetic appearance.

The final section of this chapter will look at the ways in which early medieval authors added authority to the ‘Sphere’, through both attributions to ancient respected authorities, and decoration. The various attributions of the ‘Sphere’ are most commonly to Pythagoras and Apuleius, but also to other ancient authorities, such as the High Priest of Thoth, Petosiris. Other attributions have been erroneously made by modern historians, such as Hippocrates (c. 460 – c. 370 BCE), Bede (c. 672 – 735 CE) and Columcille (521 – 597 CE). It is almost certain that none of these authors was responsible for composing this device, but this should not be surprising. In the Middle Ages, an attribution of a respected, ancient name to a text was a way to add authority. Decoration, too, was occasionally used to add specifically Christian authority to the ‘Sphere’, and this will be discussed taking into account the manuscript context of two examples of the early medieval ‘Sphere’ in which Life and Death are personified as Christ and the Devil.

#### Origins and typology

The first historians of the early medieval ‘Sphere’ believed that the origins of this device were easy to trace, because a Greek version of the ‘Sphere’ entitled *The Sphere of Democritus* survives in Leiden Papyrus V, produced in the fourth century CE. As well as the ‘Sphere’, this very important papyrus houses a plethora of

ancient Greek magic and divinatory spells.<sup>141</sup> The *Sphere of Democritus* was thought to be the direct ancestor of the redaction known as the *Sphere of Pythagoras/Apuleius*. Additionally, a separate redaction called the *Sphere of Petosiris* was thought by Auguste Bouché-Leclercq to survive in a number of ancient Greek manuscripts.<sup>142</sup> In fact none of the manuscripts Bouché-Leclercq cites are from ancient Greece but rather fifteenth and sixteenth century witnesses, and there are no known papyri of ancient Greek provenance that contain this device. As Juste points out, it is clear from the Latin version of the 'Sphere' entitled the *Sphere of Petosiris* was translated from Greek, as it contains Greek words and numerical values of the planets, and of the lunar days deriving from the values of Greek calculation, as well as the attribution to Petosiris, which is common for Greek astrological and divinatory tracts.<sup>143</sup> Wickersheimer, Thorndike, and Sigerist believed these two devices to be completely separate. Wickersheimer also identified a third device, the *Tetragonus subiectus*, a 'Sphere' with a rectangular diagram and its own textual redaction, which he believed was totally separate from the *Sphere of Democritus* and *Sphere of Petosiris*.<sup>144</sup> Thorndike placed the *Sphere of Democritus*, *Sphere of Petosiris*, and *Sphere of Pythagoras* or *Apuleius* in distinct categories, believing that the latter had replaced the *Sphere of Democritus*.<sup>145</sup> Chardonnes pointed out that there is no evidence for this replacement, or that any of these devices are distinctly separate from one another. While identifying five versions of the 'Sphere', he regarded all 'Spheres' as varieties of one genre, describing the Anglo-Saxon devices as 'DIY kits which can be constructed from a choice of components, often offering more than one alternative for each part'.<sup>146</sup> Chardonnes's typology of the 'Sphere' is flawed, however, because he analysed only manuscripts of English provenance and therefore missed versions available in continental manuscripts and those in other languages, such as Syriac, Arabic, and Hebrew, from Antiquity. Therefore, Chardonnes's typology, while providing a useful starting point, ultimately paints a distorted picture for the early Middle Ages.

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<sup>141</sup> The link between the medieval *Spheres* and the device in the Leiden papyrus was first noted in Wickersheimer, 'Figures médico-astrologiques', p. 167. The *Sphere of Democritus* is transcribed and translated in *The Greek Magical Papyri in Translation: Including the Demotic Spells* trans. Hans Dieter Betz, vol. I (Chicago: University of Chicago Press, 1996), pp. 165-66.

<sup>142</sup> Bouché-Leclercq, *L'astrologie grecque* pp. 539-541.

<sup>143</sup> David Juste, personal correspondence, 12 December 2010.

<sup>144</sup> Wickersheimer, 'Figures médico-astrologiques', pp. 164-174; Sigerist, 'Sphere of Life and Death' pp. 292-293.

<sup>145</sup> Thorndike, *History of Magic* vol. I, p. 682-683.

<sup>146</sup> Chardonnes, *Anglo-Saxon Prognostics*, p. 192-193.

Despite this disagreement between historians as to the categories of the early medieval ‘Sphere’, it is possible to identify five main types from the period c. 800 – c. 1125.<sup>147</sup> Although this thesis focuses on the British Isles in the period c. 1200 – c. 1500, what is set out below is a categorisation of the ‘Sphere’ variants for all Latin versions for the period c. 800 – c. 1125 regardless of provenance. The first thing to note from Juste’s unpublished work is that the *Sphere of Petosiris*, the *Sphere of Pythagoras/Apuleius* and the *Tetragonus subiectus* were separate devices, even in Antiquity, and so Wickersheimer was correct to differentiate between them, even if he did not know of all the extant manuscripts in different languages. This is not to say that Chardonnes’s view that these are all variations on the same device is wrong. It is quite possible that all of these versions did, at some point earlier in Antiquity, derive from the same device. It is also true that all versions of the ‘Sphere’ extant from the early Middle Ages do vary somewhat: some are accompanied by additional texts or have varying instructions or diagrams. In spite of this, it is still possible to speak of five distinct versions of the early medieval ‘Sphere’ in Latin.

The first of these versions is the *Sphere of Petosiris*, as edited by Thomas Tolles.<sup>148</sup> This has a rhomboid diagram, with a long accompanying text in the form of a letter from Petosiris, High Priest of Thoth to Nechepso (seventh century BCE). The text explains that the purpose of the device is to work out three outcomes: whether a sick person will live or die, whether or not a fugitive will return, or if someone will be victorious in battle. It uses the example of Hector and Achilles’s duel as a demonstration. Only the number of the day of the moon is added to the total before division (not the planetary weekday) and the divisor is always twenty-nine.

The second and third types are the *Sphere of Apuleius* or *Pythagoras* in two versions: textually related to the example attributed to Democritus (c. 460 – c. 370 BCE) in the Leiden papyrus. The first begins ‘Ratio sperae Pythagorae philosophi quam Apuleius descripsit’, the second ‘Spera Apulei Platonici’, both of which are transcribed by Sigerist and Liuzza.<sup>149</sup> Additionally, the second version is often accompanied by a short six-line mnemonic poem beginning ‘Collige per numerum

<sup>147</sup> David Juste, personal correspondence, 2 July 2011.

<sup>148</sup> Thomas G. Tolles, ‘The Latin Tradition of the *Epistola Petosiridis*’, *Manuscripta* 26 (1982), pp. 50-60.

<sup>149</sup> *Ratio sperae Pythagorae* is in Sigerist, ‘Sphere of Life and Death’, pp. 297-98 and Liuzza, ‘Sphere of Life and Death’ pp. 40-45; and *Spera Apulei Platonici* is in Sigerist, ‘Sphere of Life and Death’ pp. 294-95 and Liuzza, ‘Sphere of Life and Death’ pp. 39-40.

quicquid lune esse probandum'. The divisor for this version is always thirty, and an example is not provided in the text as in the *Sphere of Petosiris*.

The fourth and fifth types are the *Tetragonus subiectus* in two versions, one, *De tetragono subiecto* opening 'Si nosse vis de qualibet', edited by Wickersheimer,<sup>150</sup> and the *Pythagorae sive Cratonis spera*, opening 'Disce diem lune', as yet unpublished.<sup>151</sup> The diagram for the two *Tetragonus subiectus* devices is usually square. The second version includes the instruction to add twenty days to the total of the day of the moon, and this as well as certain instructions (that one must find the exact name given at birth to the individual in question, for example) is in line with a version which appears in the *Syriac Book of Medicines*, (discussed in chapter 1) the contents of which have much earlier roots. This implies that the second type of *Tetragonus subiectus* redaction is descended from, if not related to, a much older Syriac version,<sup>152</sup> which is also found in Latin translation in a fragment of an *Alchandreana* text edited by Juste.<sup>153</sup>

Four versions out of the total of five are extant in manuscripts of English provenance in the early Middle Ages. For example, 'Ratio sperae Pythagorae' is in the 'Vitellius Psalter', London, British Library MS Cotton Vitellius E XVIII, f. 14v, created at Winchester in the mid-eleventh century.<sup>154</sup> 'Spera Apulei Platonici' is present in Oxford Bodleian MS Bodley 579, the 'Leofric Missal', ff. 49v-50r, written in the 970s at Canterbury or Glastonbury (figure 10:a-b).<sup>155</sup> The *Sphere of Petosiris* had reached England by the early twelfth century at the latest, as evidenced by its appearance in Los Angeles, John Paul Getty Museum MS Ludwig XII.5, ff. 47r-v, probably produced at Worcester at the start of the twelfth century.<sup>156</sup> The *Pythagorae sive Cratonis spera* was also in England at least as early as the twelfth century, as it is extant in London, Wellcome MS 21, f. 7r, one of the earliest

<sup>150</sup> Wickersheimer, 'Figures médico-astrologiques', pp. 172-74.

<sup>151</sup> This version appears in e.g. Ivrea, Biblioteca Capitolare, MS 19, f. 11r, produced in Italy in the tenth century. On date, see Thorndike, *A History of Magic* vol. I, p. 692.

<sup>152</sup> Budge, *Syriac Book of Medicines*, vol. II, p. 539.

<sup>153</sup> Juste, *Alchandreana primitifs*, p. 644.

<sup>154</sup> London, British Library MS Cotton Vitellius E XVIII, f. 14v. On date and provenance, see N. R. Ker, *Catalogue of Manuscripts Containing Anglo-Saxon* (Oxford: Clarendon Press, 1957), pp. 298-301.

<sup>155</sup> Oxford, Bodleian Library MS Bodley 579, ff. 49v-50r. On date and provenance see Helmut Gneuss, *Handlist of Anglo-Saxon Manuscripts: A List of Manuscript Fragments Written or Owned in England up to 1100* (Tempe: Arizona Center for Medieval and Renaissance Studies, 2001), p. 95.

<sup>156</sup> Los Angeles, John Paul Getty Museum MS Ludwig XII.5, ff. 47r-v. On date and provenance, see Anton von Euw and Joachim M. Plotzek, *Die Handschriften der Sammlung Ludwig* (Cologne: Schnütgen-Museum, 1982), pp. 158-168.

surviving English manuscripts containing treatises of judicial astrology (figure 11).<sup>157</sup> No known manuscripts of English provenance produced before c. 1125 contain the first version of the *Tetragonus subiectus*, though several manuscripts from the early Middle Ages containing this device exist, many of which are of unknown or uninvestigated origin.

#### Translation, corruption, and the computistical context

Sigerist suggested that the first Latin translations of the ‘Sphere’ were made in the sixth century, because translations of similar material, i.e. simple astronomical and prognostic texts, took place at this time.<sup>158</sup> Even though no pre-ninth century devices are extant, most scholars since have agreed on this as the likely date of translation.<sup>159</sup> Singer identified the earliest extant medieval ‘Sphere’ as the example from the first half of the ninth century, Paris Bibliothèque Nationale MS lat. 11411, f. 99r.<sup>160</sup> However, Cologne, Erzbischöflichen Diözesan- und Dombibliothek MS 83.II can be confidently dated c. 798 – c. 805.<sup>161</sup> Originating in Cologne, this contains treatises of computus, including the work of Bede and Paschal tables, extracts from the *Chronicles* of Isidore of Seville, and the earliest extant Latin ‘Sphere’ on f. 218v. During the ninth century, the number of ‘Spheres’ found in manuscripts increased rapidly, and there are surviving examples in continental manuscripts from the abbeys of Fleury, Chartres, and Corbie, amongst many others.<sup>162</sup>

While almost all of the extant ninth and early tenth-century manuscripts containing the ‘Sphere’ originated in northern France, Flanders and the Rhineland, a large number of extant early medieval ‘Spheres’ are found in manuscripts of Anglo-Saxon provenance from the late tenth century onwards.<sup>163</sup> At present, some 16 manuscripts containing at least one ‘Sphere’ produced pre-1125 can confidently be given English provenance. The earliest datable ‘Sphere’ in an English-produced manuscript is the aforementioned ‘Spera Apulei Platonici’ in the late tenth-century

<sup>157</sup> London, Wellcome Library MS 21, f. 7r. On date and provenance see Charles Burnett, *The Introduction of Arabic Learning into England* [The Panizzi Lectures, 1996] (London: British Library, 1997), p. 10.

<sup>158</sup> Sigerist, ‘Sphere of Life and Death’, p. 293.

<sup>159</sup> Chardonnens, *Anglo-Saxon Prognostics*, p. 183.

<sup>160</sup> Singer, *From Magic to Science*, pp. 144–145.

<sup>161</sup> Juste, personal correspondence, 12 December 2010.

<sup>162</sup> For example, Chartres, Bibliothèque Municipale MS 113, f. 99 (Chartres); Paris, Bibliothèque Nationale MS nouv. acq. lat. 1616, f. 7v (Fleury); and Florence, Biblioteca Laurenziana MS Laur. Plut. 38, f. 24 (Corbie). On date and provenance, see Van de Vyver, ‘Les plus anciennes traductions’, p. 675.

<sup>163</sup> Chardonnens, *Anglo-Saxon Prognostics*, p. 182.

Leofric Missal, located in the computistical section. The 'Sphere' also came to England via computistical manuscripts in another version. By carefully comparing manuscript witnesses, Juste deftly reconstructed a scenario in which Abbo of Fleury (c. 945 - 1004) brought a manuscript containing the 'Ratio spere Pythagorae' redaction to England and used it as part of his teaching at Ramsey Abbey, Cambridgeshire, in the years 985 - 988.<sup>164</sup> Abbo, in turn, influenced Byrhtferth, later Abbot of Ramsey (c. 970 - c. 1020), to produce his own version of the 'Sphere', consisting of a rhomboid diagram with a textual redaction similar to that of the *Sphere of Pythagoras/Apuleius*, but including an example adapted from the *Sphere of Petosiris*. This uses thirty as a divisor, but twenty-nine in the example, and is actually a variety of *Pythagoras/Apuleius*, rather than *Petosiris*, as Chardonens believed.<sup>165</sup>

Thus, all that can be said with any certainty about the translation of the 'Sphere' into Latin is that it occurred at some time prior to the ninth century, possibly at an abbey in northern France, Flanders or the Rhineland. It cannot be ascertained if the 'Sphere' was translated for the purpose of adding it to computistical compendia, or whether the attraction between computistical tables and the 'Sphere' took place once translation had occurred. Nonetheless, the 'Spheres' in manuscripts of English provenance that survive from the period c. 900 – c. 1125 are almost all in a computistical context. Scholars have offered various reasons as to why medical items such as the 'Sphere' were copied into computistical compendia. Wallis and Juste argued that the attraction was based on astronomical time-measurement, as matters of prognosis and treatment centred on propitious and non-propitious days of the moon and the Hippocratic critical days of illness.<sup>166</sup> Chardonens, however, believed the attraction to be based around the scientific guise of the 'Sphere' as a round diagram rather than any value of the device as a prognostic tool.<sup>167</sup> But there is no reason why these two ideas are mutually exclusive. If a 'Sphere' was copied into a manuscript purely because of a theoretical link between diagrams, that does not mean that it was not used as a prognostic by later owners and readers, and vice

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<sup>164</sup> David Juste, 'Comput et divination chez Abbon de Fleury', in *Abbon de Fleury: philosophie, science et comput autour de l'an mil*, ed. B. Obrist [Oriens-Occidens. Sciences, mathématiques et philosophie de l'Antiquité à l'Age classique 6] (Paris: Villejuif, 2004), pp. 110-111.

<sup>165</sup> Chardonens, *Anglo-Saxon Prognostics*, p. 187. This version is present in e.g. Oxford, St. John's College Library MS 17, f. 41r.

<sup>166</sup> On the attraction between medical items such as 'Spheres' and computus, see Wallis, 'Medicine in Medieval Calendar Manuscripts'; and Juste, 'Comput et divination'.

<sup>167</sup> Chardonens, *Anglo-Saxon Prognostics*, p. 31.

versa. Moreover, the 'Sphere', had much in common with computus, both in terms of both content and appearance (see chapter 2 for a discussion on the 'Sphere' as a diagram).

The example of Oxford St. John's College MS 17 (figures 12:a-b) neatly illustrates Chardonnens's point, by demonstrating how the divinatory 'Sphere' was given an orthodox appearance by its association with time-keeping tables. On f. 40v is a round computistical chart, and on the opposing f. 41r are two 'Spheres', which look totally in place within this manuscript. The 'Sphere' is disguised here as a computistical table.<sup>168</sup> But this does not mean that 'Spheres' found in computistical compendia were not used by those who copied them. As discussed in chapter 8, Frederick Paxton's work on monastic rituals for dying monks pointed out just how important it was for all the monks in a monastery to be present at the bedside of a dying brother. Monasteries had, since the sixth century, made a great effort to collect all kinds of texts that claimed to predict death, perhaps at least partly for the purpose of having enough time to carry out the prescribed death rituals.<sup>169</sup> Thus, there is every reason to believe that the 'Sphere' was both aesthetically pleasing in a computistical setting, as well as being a useful tool for the prediction of death.

Juste points out the inherent problems that scribes came up against when confronted with several versions of a 'Sphere', all of which could produce radically different results for the same person. The first issue was that of the planetary weekday. In some cases it was added, as in the *Sphere of Pythagoras/Apuleius*, but in others, for example the *Sphere of Petosiris*, it was not. The divisor was also in question. Was it twenty-nine, as in *Petosiris*, or thirty, as in *Pythagoras/Apuleius*?<sup>170</sup> The second version of *Tetragonus subiectus* also called for the addition of twenty days to the day of the moon, which added yet more variation. Juste concludes that it was compilers such as those under Abbo of Fleury in the late tenth century who sought to find the ultimate 'correct' version. This is why several devices are often copied together in early medieval computistical compendia, as compilers sought to rediscover an uncorrupted original version of the 'Sphere' that would give the 'right' answer. One early twelfth-century scribe even noted that he had created his own 'right' version of the 'Sphere'. At the end of the usual 'Sphere' instructions in

<sup>168</sup> Oxford, St. John's College Library MS 17, ff. 40v-41r.

<sup>169</sup> Frederick S. Paxton, '*Signa Mortifera*: Death and Prognostication in Early Medieval Monastic Medicine', *Bulletin of the History of Medicine* 67:4 (1993), pp. 631-650.

<sup>170</sup> Juste, 'Comput et divination', p. 116.



Cambridge, Trinity College Library MS O.7.41, f. 1r is written, 'I found this written in many ways, but that which I have noted here I have proven to be true' (figure 13).<sup>171</sup>

As well as the problems that scribes encountered when facing different versions of the 'Sphere', massive corruptions had occurred with the translation of this device from Greek into Latin. All the letters of the Greek, Hebrew and Arabic alphabets, from which these devices may have been copied, had corresponding numbers, based on a system called *abjad*: the first nine letters corresponded to units (so, numbers one to nine), the second nine to tens (so, numbers ten to ninety) and however many remained depending on the length of the alphabet corresponded to hundreds. Therefore, onomancy worked perfectly in these languages, and even in translations between these languages, as the *abjad* of the original language was merely substituted with the *abjad* of the receiving language. The problem arose when onomantic devices such as the 'Sphere' were translated into Latin. While seven Latin letters had parallel Roman numerals - C, D, I, L, M, V, and X – the remainder did not. Additionally, there was no reason behind why these particular numbers and letters corresponded, unlike the *abjads* of the original languages. There was not only the problem of assigning numbers to letters. There was also the issue of differing alphabet lengths, and more seriously, the issue with matching up Greek or Hebrew letters to Latin ones. Scribes translating the astrological-onomantic corpus of the *Alchandreana* into Latin in late tenth and eleventh century Catalonia were acutely aware of this problem and devised several ways of trying to get around it, all of which conformed to a particular rationale, but none of which were completely satisfactory. A system like onomancy, derived from languages with a definite *abjad*, was never going to work in Latin, because the slightest variation could result in dramatically different outcomes. Those who translated the texts from their original languages must have known that there was a level of arbitrariness about the Latin letters that were matched up with equivalents in other languages.<sup>172</sup>

It is clear that similar problems occurred in the translation of the 'Sphere' as with the *Alchandreana* into Latin from the original languages. Like the *Alchandreana* translators, it is possible that scribes and copyists of the 'Sphere' attempted to

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<sup>171</sup> 'Multis modis hoc scriptum repperi sed sicut hic annotavi verum esse probavi'. Cambridge, Trinity College Library MS O.7.41, f. 1r.

<sup>172</sup> David Juste, 'Non-transferable Knowledge: Arabic, and Hebrew Onomancy into Latin', *Annals of Science* 68:4 (2011), pp. 517-529.

provide a satisfactory set of number-letter correlations, but the Latin version of the 'Sphere' was doomed to failure for the same reasons as the Latin *Alchandreana*. Additionally, not only were there corruptions in the number-letter correlations, but, perhaps because of scribal error as much as anything else, there was also wide variation in the remainders signifying 'life' and 'death' from device to device.

The corruption in remainders manifested itself in three major ways in early medieval manuscripts. Firstly, multiple examples frequently appear close to each other in the same manuscript with different remainders. For example, the aforementioned Oxford, St. John's College Library MS 17 has two 'Spheres' copied next to each other on f. 41r (figures 12:a-b). But 29 is the remainder signifying 'life' in the upper (left) example and signifying 'death' in the lower (right).<sup>173</sup> Secondly, the same remainder might appear in both hemispheres of a single device, such as the first of two 'Spheres' in the Annals of Peterborough Abbey, produced in the first half of the twelfth century. This manuscript is now London, British Library MS Harley 3667, and the 'Sphere' on f. 4v (figures 14:a-b) has 12 as a remainder signifying both 'life' and 'death'.<sup>174</sup> Finally, certain remainders simply do not appear at all, such as in the aforementioned London, British Library MS Cotton Vitellius E XVIII, f. 16r, a Gallican psalter with a computistical section. The number 24 is not represented as a remainder in either hemisphere of this device.<sup>175</sup>

Simply put, there were massive and irreconcilable differences between the versions of the 'Sphere' that circulated as early as the first Latin translations were made into English. Scribes tried, and failed, to construct an uncorrupted onomantic alphabet in Latin. Yet, if the scribes who copied the 'Sphere' knew that it was corrupted, why did it survive? As Boudet points out, these corruptions may have actually contributed to the device's survival, since if the device failed to predict the outcome accurately, then the version used, rather than the system could be blamed.<sup>176</sup> This interest in discovering the 'correct' version of the 'Sphere' also indicates just how useful this device might have seemed to those scribes who copied it in the early Middle Ages. If they had no use for the 'Sphere', they would not make too much effort to find a correct original. Additionally, as discussed in chapters 6 and 7, the corruption and

<sup>173</sup> Oxford, St. John's College Library MS 17, f. 41r.

<sup>174</sup> London, British Library MS Harley 3667, f. 4v. The provenance of this manuscript is certain, as it contains the Annals of Peterborough Abbey ff. 1r-2v.

<sup>175</sup> London, British Library MS Cotton Vitellius E XVIII, f. 16r.

<sup>176</sup> Boudet, *Entre science et nigromance*, p. 43.

ambiguity that the 'Sphere' could produce might not always be disadvantageous in the later Middle Ages, whether in predicting life or death or the outcome of a duel.

#### The addition of authority: attributions and Christianisation

The 'Sphere' is commonly attributed to a variety of different authors in the early Middle Ages, though it is extremely unlikely that any of these was actually responsible for its composition. In the Middle Ages generally, authority was added to a text by the attribution of an ancient and/or respected name. A scribe did not feel the need to be named as the author of a text in the same way as a modern writer values copyright and recognition. Many medical texts composed in the Middle Ages, for example, are spuriously attributed to the leading authorities on medicine: Hippocrates and/or Galen (c. 130 – c. 210 CE). For example, the prognostic text called *The Ivory Casket*, commonly found in early medieval manuscripts, is ascribed to Hippocrates.<sup>177</sup> While such texts might loosely follow Hippocratic or Galenic principles, they cannot be said to be genuine works of either of these authors. Aristotle (384 – 322 BCE), too, was a favoured authority to attach to one's text. For example, an extremely popular pseudo-Aristotelian text in the Middle Ages was the *Secreta secretorum*, a mid-twelfth century Latin translation of a tenth century Arabic encyclopedia on a wide range of topics.<sup>178</sup> Certain respected medieval figures were also spuriously attached to texts, such as the fifth-or-sixth century Dionysius the Areopagite, pseudonymous author of several texts including the extremely influential *Celestial Hierarchy*;<sup>179</sup> Bede, to whom was falsely attributed *De mundi celestis terrestrisque constitutione*;<sup>180</sup> and Albertus Magnus (c. 1200 - 1280), who is credited with having written the popular medical tract *De secretis mulierum*.<sup>181</sup> Thus,

<sup>177</sup> Pseudo-Hippocrates, *The Ivory Casket*, from the edition by Karl Sudhoff, 'Die pseudohippokratische Krankheitsprognostik nach dem Auftreten von Hautausschlägen, 'Secreta Hippocratis' oder 'Capsulea eburnea' benannt', *Archiv für Geschichte der Medizin* 9 (1916), pp. 88-102. Translated in *Medieval Medicine: A Reader* ed. Faith Wallis (Toronto: University of Toronto Press, 2010), pp. 43-45.

<sup>178</sup> On the *Secreta secretorum* see Steven J. Williams, *The Secret of Secrets: the Scholarly Career of a Pseudo-Aristotelian Text in the Latin Middle Ages* (Ann Arbor: University of Michigan Press, 2003).

<sup>179</sup> See Pseudo-Dionysius the Areopagite, *The Mystical Theology and the Celestial Hierarchies of Dionysius the Areopagite* trans. the editors of the Shrine of Wisdom, second edition (Godalming: The Shrine of Wisdom, 1965).

<sup>180</sup> See Pseudo-Bede, *De Mundi Celestis Terrestrisque Constitutione*, in *Pseudo-Bede: De Mundi Celestis Terrestrisque Constitutione: A Treatise on the Universe and the Soul* ed. Charles Burnett [Warburg Institute Surveys and Texts, 10] (London: Warburg Institute, 1985).

<sup>181</sup> Pseudo-Albertus Magnus, *De secretis mulierum*, in *Women's Secrets: A Translation of Pseudo-Albertus Magnus's De Secretis Mulierum with Commentaries* ed. and trans. Helen Rodnite Lemay (New York: SUNY, 1992).

the spurious attribution of the 'Sphere' to ancient and early medieval authorities makes perfect sense against this backdrop of pseudonymous works. That is not to say, of course, that those people who read or used pseudepigrapha in the Middle Ages knew that these attributions were spurious.<sup>182</sup>

The most common attribution of the 'Sphere' in the early Middle Ages is to Pythagoras. Describing Abaris's instruction by Pythagoras, the Neopythagorean philosopher Iamblichus (c. 245 – c. 345 CE) stated:

Abaris remained, and, as I said, Pythagoras taught him natural science and theology in summary form. Instead of divination by inspection of sacrifices he taught him divination by numbers, which he thought purer, more divine, and more closely connected with the heavenly numbers of the gods. He also taught Abaris other practices suited to him.<sup>183</sup>

There is no way of judging the accuracy of a fourth-century CE portrayal of a sixth-century BCE philosopher, but the important point to note here is that Pythagoras was believed to practise divination by numbers by a Neoplatonic philosopher of late Antiquity. Even if Iamblichus's nod to Pythagoras's enthusiasm for numerical divination was an isolated reference, and completely unconnected to the 'Sphere', it is not difficult to understand why such a device would be attributed to Pythagoras, whose influence on medieval philosophy cannot be overestimated. As Christiane Joost-Gaugier points out, the Church Fathers approved of the moral values of Pythagoreanism, which led to the acceptability of this ancient pagan philosopher in Christian thought. The philosophy that numbers alone could explain the forms of nature and proportions of the universe was also absorbed into early Christian theology, and this notion carried on into the Middle Ages, when numerical ideas were applied to the organisation of learning. Medieval Pythagoreanism had a vast geographic and cross-cultural reach.<sup>184</sup>

Another common attribution is to Apuleius. This probably refers to Apuleius of Madaura, a North African Latin writer, who had studied Platonist philosophy in Greece. Apuleius was known as a member of several mystery cults. His most famous work, the *Metamorphoses* (also known as *The Golden Ass*) is a fictional

<sup>182</sup> On pseudonymous authors in medieval medicine, see Faith Wallis, 'The Experience of the Book: Manuscripts, Texts and the Role of Epistemology in Early Medieval Medicine', in *Knowledge and the Scholarly Medical Traditions* ed. Don Bates (Cambridge: Cambridge University Press, 1995), pp. 101-126.

<sup>183</sup> Iamblichus, *On the Pythagorean Life* trans. Gillian Clark (Liverpool: Liverpool University Press, 1989), pp. 39-40.

<sup>184</sup> Joost-Gaugier, *Measuring Heaven*, p. 116.

account of magic and human-animal transformation.<sup>185</sup> Apuleius was also spuriously credited with a herbal, probably compiled around 400 CE in Greek. This was one of the most popular medical works that circulated in the Middle Ages, surviving wholly or partially in some 60 manuscripts produced between the sixth and fifteenth centuries.<sup>186</sup> Thus, Apuleius was closely associated with Platonist philosophy, magic and medicine, which perhaps explains the attribution of the 'Spera Apulei Platonici'. However, the other version of the *Sphere of Pythagoras/Apuleius* ascribes a different role to Apuleius in the history of the 'Sphere'. It opens 'Ratio sperae Pythagorae quam Apuleius descripsit'. This implies that Apuleius did not compose the 'Sphere', but had either spoken of it in one of his works, or perhaps made his own copy of it. No work of Apuleius, either genuine or spurious, is known to describe a 'Sphere' or anything like it. However, both the *Metamorphoses* and the *Florida*, a compilation of extracts from a selection of Apuleius's speeches and lectures, discuss an array of magical and divinatory practices.<sup>187</sup>

Pythagoras and Apuleius are the most frequent attributions of the early medieval 'Sphere' in terms of ancient authorities, but not the only ones. As previously mentioned, there is a version of the 'Sphere' ascribed to Petosiris, High Priest of Thoth, which takes the form of a letter written to king Nechepso. Democritus was also credited with the composition of this device, as in the example of the 'Sphere' in the aforementioned Leiden papyrus V. Democritus, an ancient Greek philosopher, was described by Diogenes Laërtius, third century CE biographer of the Greek philosophers, thusly:

He seems, says Thrasyllus, to have been an adherent of the Pythagorean doctrines; and indeed he refers to Pythagoras himself, expressing admiration for him in his book of the same title. He appears to take all his views from him, and would even appear to have been his pupil, did not chronology make that impossible. But Glaucus of Rhegium, who lived about the same time, says that he had all his teaching from one of the Pythagoreans...<sup>188</sup>

<sup>185</sup> Apuleius, *Metamorphoses*, in *Apuleius: The Golden Ass, Or, A Book of Changes* ed. and trans. Joel C. Relihan (Indianapolis: Hackett Publishing, 2007).

<sup>186</sup> Minta Collins, *Medieval Herbals: The Illustrative Traditions* (London: The British Library; and Toronto: University of Toronto Press, 2000), p. 165. On Apuleius's herbal see also Frank J. Anderson, *An Illustrated History of the Herbals* (New York: Columbia University Press, 1997), pp. 23-29.

<sup>187</sup> On the *Florida* see Benjamin Todd Lee, *Apuleius' Florida: a commentary* (Berlin and New York: De Gruyter, 2005).

<sup>188</sup> Diogenes Laërtius. *The Life of Democritus*, in *The Lives and Opinions of Eminent Philosophers by Diogenes Laërtius* trans. C. C. W. Taylor, *The Atomists Leucippus and Democritus: Fragments* (Toronto, Buffalo, and London: University of Toronto Press, 1999), p. 56.

Therefore, the attribution to Democritus is not surprising in light of his adherence to Pythagorean doctrines. Finally, the second version of the *Tetragonus subiectus*, beginning ‘Disce diem lune’, is sometimes called the *Pythagorae sive Cratonis spera* – the *Sphere of Pythagoras or Crato*. The latter seems to refer to the philosopher Crato, rebuked by St. John the Evangelist in the *Golden Legend* of Jacob of Voragine (c. 1230 – 1298);<sup>189</sup> possibly the same man who begged the Bishop of Terni, Valentine, to heal his sick son. His son recovered, and the family converted to Christianity but were soon martyred in Rome.<sup>190</sup> If ‘Cratonis’ does refer to this man, then the attribution is difficult to understand, given the limited knowledge that we have about him. However, as Crato was a Christian martyr, this could be an early medieval attempt at adding Christian authority to the ‘Sphere’, while at the same time retaining the attribution to Pythagoras.

In addition to the spurious attributions given to the ‘Sphere’ by early medieval scribes and copyists, several historians are also responsible for entirely erroneous ascriptions. Singer stated in 1928 that ‘during the Dark and Middle Ages this diagram is common in English manuscripts, where it is variously assigned to Hippocrates, Democritus, Apuleius, Apollonius, Pythagoras, Columcille, Bede, Petosiris, Nechepso, and Plato’.<sup>191</sup> As discussed, Democritus, Apuleius, Petosiris and Pythagoras were all credited with the composition of the ‘Sphere’, and Apollonius (c. 15 – c. 100 CE) will be examined in chapter 4, but there is no evidence of a ‘Sphere’ being assigned to Hippocrates. Additionally, while it may seem like splitting hairs, it is worth pointing out that Nechepso is not credited with the composition of a ‘Sphere’, but rather as the recipient of a letter from Petosiris. Plato is only ever referred to in early medieval ‘Sphere’ texts as part of the name ‘Apuleius Platonius’, which is believed to have been a nickname of Apuleius (as discussed in chapter 4, however, a specific ‘Sphere’ redaction was attributed to Plato on his own in the later Middle Ages). As for Columcille, *Columcille’s Circle* was confused with the ‘Sphere’ by Singer and his followers due to its shape as a circular diagram. It is not a predictive device at all, but an Old English amulet designed to protect a bee enclosure. This diagram does, however, share a lot in common with the ‘Sphere’. The aforementioned London British Library Cotton

<sup>189</sup> Jacobus de Voragine, *The Golden Legend* trans. Granger Ryan and Helmut Ripperger (New York, London, and Toronto: Longmans Green and co., 1941), p. 59.

<sup>190</sup> *Acta Sanctorum* ed. Jean Bolland and Godfrey Henschen, vol. V (Paris and Rome: 1864), p. 757.

<sup>191</sup> Singer, *From Magic to Science*, p. 145.

Vitellius E XVIII, has a 'Sphere' f. 14v and another f. 16r, and these frame *Columcille's Circle*, which contains some of the Roman numerals from the 'Sphere'.<sup>192</sup> Thus, crossover could and did occur when scribes had access to both diagrams.<sup>193</sup> The 'Sphere' itself, however, is actually never ascribed to Columcille.

Another medieval 'Sphere' attribution invented by historians is to Bede (although one Latin translation of the *Letter of Petosiris to Nechepso* was ascribed to Bede in the sixteenth century).<sup>194</sup> Perhaps the fact that Bede wrote computistical works with which the 'Sphere' often appears in early medieval manuscripts explains this later ascription. For example, London British Library MS Cotton Tiberius C I, produced c. 1125 at Peterborough Abbey, contains parts of the *De Temporibus* of Bede on f. 2v and 'Spheres' on f. 7v. Thus, of Singer's list, only Pythagoras, Apuleius, Apollonius, Petosiris, and Democritus were actually credited by medieval writers with having composed the 'Sphere'. Hippocrates and Columcille are all entirely spurious, Bede is only attributed after 1500, Plato is only mentioned in the context of Apuleius Platonius in the early medieval corpus, and Nechepso is not the writer but the receiver of Petosiris's letter.

As well as through spurious attribution, early medieval copyists of the 'Sphere' added authority to their texts through decoration and illustration. In terms of the addition of overtly Christian authority, the 'Sphere' in the aforementioned 'Leofric Missal' personifies 'Vita' and 'Mors' as Christ and the Devil respectively (figures 10:a-b). Adelheid Heimann makes several important points about the representations of Vita and Mors in this manuscript. Firstly, their linking with Christ and the Devil respectively makes sense within Christian thought, but this is a rare example of such a connection. Secondly, they are unmistakably characterised: Christ is bearded, crowned and holds a cross. The Devil is naked save a loin cloth. He has talons and wings, and a small clump of hair on his chest. Thirdly, Christ and the Devil are given equal importance: they have the same amount of space – i.e. a whole side of a folio each - and are on equal terms.<sup>195</sup>

<sup>192</sup> London, British Library MS Cotton Vitellius E XVIII, ff. 14v-16r.

<sup>193</sup> On *Columcille's Circle* in this manuscript see Karen L. Jolly, 'Tapping the Power of the Cross', in *The Place of the Cross in Anglo-Saxon England* ed. Catherine E. Karkov, Sarah Larratt Keefer and Karen Louise Jolly (Woodbridge: Boydell, 2006), pp. 66-67.

<sup>194</sup> C. W. Jones, *Bedae Pseudepigrapha: Scientific Writings Falsely Attributed to Bede* (Ithaca and London: Cornell University Press and Oxford University Press, 1939), p. 90.

<sup>195</sup> Adelheid Heimann, 'Three Illustrations from the Bury St. Edmunds Psalter and Their Prototypes', *Journal of the Warburg and Courtauld Institutes* 29 (1966), pp. 41-43.

A second manuscript, which is a direct descendant or relative of the Leofric Missal, also represents the figures of 'Life' and 'Death' in this way. This is the 'Tiberius Psalter' f. 6v, written c. 1050 at Winchester (discussed in chapter 2). Unlike the depiction in the 'Leofric Missal', the 'Sphere' in this manuscript depicts 'Vita' as a youthful Christ, and 'Mors' has a firm outline with no talons or wings. Christ is depicted on top of the Devil in this example.<sup>196</sup> However, as Openshaw demonstrates, this manuscript as a whole depicts the struggle of Christ and the Devil throughout.<sup>197</sup> Therefore this decoration should perhaps not be particularly surprising.

Despite these two striking examples of early medieval Christianised 'Spheres', it seems that the linking of 'Vita' with Christ and 'Mors' with Satan was relatively rare, since these are the only two known examples. Additionally, there are no known post-1125 manuscripts which use art in this way to add authority, Christian or otherwise, to the 'Sphere'. The Christianisation of this device through decoration, then, was not something that was seen as desirable in the period after 1200.

#### The decline of early medieval computus

Extant manuscripts of English provenance imply that, in the second quarter of twelfth-century, the 'Sphere' abruptly stopped appearing in manuscripts, and was not copied into any further codices until c. 1200, when it began to appear in different contexts. The last surviving witnesses to the computistical tradition were produced in the first quarter of the twelfth century at various English abbeys and monasteries: London, British Library MS Harley 475, MS Harley 3667 (figures 14:a-b), and MS Tiberius C I at Peterborough; Oxford, St. John's College Library MS 17 at Thorney; Cambridge, Trinity College Library MS O.7.41 at Colchester; and Los Angeles, John Paul Getty Museum MS Ludwig XII.5 probably at Worcester. The next extant manuscript of English provenance containing a 'Sphere' dates from the end of the twelfth century: London, British Library MS Royal 7 D XXV (figure 1).

How can this sudden rupture in the manuscript tradition, and the seventy-five year period c. 1125 – c. 1200 from which there are no extant 'Spheres' of English provenance, be accounted for? We should not make too much of an argument from

<sup>196</sup> Heimann, 'Three Illustrations', pp. 43-44.

<sup>197</sup> K. M. Openshaw, 'The Battle Between Christ and Satan in the Tiberius Psalter', *Journal of the Warburg and Courtauld Institutes* 52 (1989), p. 15.



silence, but given the large number of extant manuscripts of English provenance that contain 'Spheres' in the period c. 900 – c. 1125, and c. 1200 – c. 1500, the break in the tradition implies that a change took place. This change is most easily ascribed to the change in computistical systems that took place in the twelfth century, which saw a proliferation of new translations of more complex astrological texts that were much more sophisticated and accurate in their calculations. The 'Sphere' was rediscovered in the later twelfth century, both from early medieval Latin translations and new translations from the Greco-Arabic tradition, and began to appear in a variety of different contexts.

### Conclusion

A single Greek papyrus, and a twelfth-century Syriac copy of much earlier material, has enabled the tracing of the 'Sphere' to different traditions and languages. Although the date of the first translations of this device into Latin cannot be postulated with any certainty, the sixth century seems the most sensible date for this translation, with the first surviving Latin example dating from the turn of the ninth century. Five different versions of the 'Sphere' text are extant in early medieval manuscripts produced across western Christendom, and all of these versions had diagrams which were corrupted in translation into Latin, with number-letter variations and remainders differing widely. It is possible that scribes under Abbo of Fleury in the late tenth century realised this issue and sought to locate the 'correct' version of the diagram, copying several examples side by side in their manuscripts.

Up to c. 1125, the manuscript context of the 'Sphere' was almost solely computistical. Just why this attraction between the 'Sphere' and computistical devices took place is debatable: was it a primarily aesthetic union of diagrams, or an intellectual link between texts of timekeeping? In any case, these reasons are not necessarily mutually exclusive. Also adding authority and clout to the 'Sphere' were the spurious attribution of authors, but only Pythagoras, Apuleius, Democritus and Petosiris, from all of those attributions listed by Singer in 1928, are historically accurate. Some early monastic scribes who included 'Spheres' also used artistic representations of Christ and the Devil to add a Christian element to the 'Sphere', though given the number of surviving manuscripts in the corpus of the 'Sphere', this was not at all common.

The decline of early medieval computus in the mid twelfth century led to a rupturing of the 'Sphere' with these texts, and there was a new fusion in the later Middle Ages of the 'Sphere' with a plethora of natural philosophical, prognostic and medical material. In the late twelfth century the 'Sphere' stepped out of its rather two-dimensional computistical setting, and from its new manuscript contexts in the period c. 1200 – c. 1500. The late medieval English manuscript corpus will now be analysed in terms of both texts and contexts, in order to gauge the variety of different people in literate society who used, or were thought to have use for, this onomantic device.

## Chapter 4

### The late medieval English manuscript corpus, c. 1200 – c. 1500

#### Introduction

Now that the Antique and early medieval texts and contexts of the ‘Sphere of Life and Death’ have been established, a detailed overview of the manuscript corpus on which this thesis focuses will be provided. It will discuss the textual variants of the ‘Sphere’ attested in Latin, and analyse the vernacular versions of the device in both English and Anglo Norman. The *Namenmantik* of Johannes Hartlieb (c. 1410 – 1468), a German translation of several ‘Sphere’ texts, will be presented as comparison. *Namenmantik* was an ambitious text which contained five versions of the ‘Sphere’, perhaps composed by Hartlieb himself. Furthermore, it circulated in multiple manuscripts, and is therefore a suitable text to compare with the ‘Sphere’ versions that circulated in England. An exposition of some of the new post-1200 attributions that are given to the ‘Sphere’ will follow, before turning to what can be known about ownership of some of these manuscripts. This chapter concludes with a discussion of physical signs of use in the manuscripts containing ‘Spheres’, that is, marginal annotations.

#### The manuscript corpus

There are 55 manuscripts of known English provenance containing at least one ‘Sphere’, either whole or partial, dating from the period c. 1200 – c. 1500. Included in this corpus are two manuscripts which once contained ‘Spheres’ but no longer do, as evidenced by contents lists,<sup>198</sup> and a missing manuscript containing a ‘Sphere’ whose contents are listed in the library catalogue of the Austin Friars at York, now Dublin Trinity College MS 359 ff. 5r-48v, produced in 1382.<sup>199</sup> Since the contents of these codices are known, it is appropriate to include them in the corpus. Several of the manuscripts contain multiple ‘Spheres’, which means that the total number of devices is considerably more than the total number of manuscripts. However, not all of the devices are complete: some are devoid of diagrams, others of texts, and

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<sup>198</sup> Cambridge, Trinity College Library MS O.1.57; and London, British Library MS Harley 531.

<sup>199</sup> This manuscript was bequeathed to the library of the Austin Friars at York by John Erghome in the fourteenth century. K. W. Humphreys, *The Friars’ Libraries* [Corpus of British Medieval Library Catalogues] (London: British Library and British Academy, 1990), p. 96.

some are unfinished. The manuscripts in which 'Spheres' are located vary widely, from larger reference works to smaller books intended for everyday use; from books containing works of learned science, astrology and medicine, to the commonplace books of householders containing practical medicine; to the manuscripts of university scholars, compendia of monks and the luxury books of the aristocracy and gentry. This range of manuscript contexts demonstrates the usefulness, or at least perceived usefulness, of the 'Sphere' to a wide variety of people at different levels of literate society in later medieval England.

Over half of the corpus, 31 manuscripts, can be confidently assigned to the fifteenth century; 3 are productions of the late fourteenth or early fifteenth centuries; 13 were produced in the fourteenth century; 3 during the late thirteenth or early fourteenth century; and 5 were written in the thirteenth century.<sup>200</sup> This cannot be taken as face value evidence of the rising popularity of the 'Sphere'. Firstly, the number of 'Spheres' that survive is in no way indicative of the original number that were produced: probably many more were copied. To estimate just how many more would be impossible. Secondly, the manuscripts which do survive are more likely than not to be from institutions - monasteries, universities, libraries - with a continuous history, relatively free of strife until the Reformation in the mid-sixteenth century. Thirdly, and especially applicable to the sorts of manuscripts that contain the 'Sphere' with a late medieval English provenance, those books that were intended to be used are likely to have simply fallen apart. This is especially true of books written on paper, which became increasingly popular throughout the fifteenth century. Fourthly, small books intended for use would have been easier to steal from libraries or elsewhere.<sup>201</sup> A final problem is concerned with the process of locating manuscripts. Catalogues, many of which are in urgent need of updating, often do not include a correct, or any, reference to small texts and diagrams. Many have not been digitised, and so need to be searched manually. The 55 manuscripts in this corpus were located from the work of previous scholars, by keyword searches in various online catalogues, and through manual trawling of paper catalogues, often calling up manuscripts that looked likely to contain the 'Sphere' and searching every folio. Despite all of these potential pitfalls, it seems that we can talk of a marked increase in popularity of the 'Sphere' between c. 1200 and c. 1500,

<sup>200</sup> See appendix II:1 for a list of manuscripts of English provenance, c. 1200 – c. 1500.

<sup>201</sup> Stuart Jenks, 'Astrometeorology in the Middle Ages', *Isis* 74:272 (1983), pp.197-199.

due to the sheer increase in the number of extant manuscripts. This can be explained by the marked increase in lay literacy in the fourteenth and fifteenth centuries, which meant that many more people were able to copy, own and read books, as well as the financial ability for more people to afford the materials to read and write: most importantly, the relatively low cost of paper as opposed to parchment.<sup>202</sup>

Of the five versions of the early medieval 'Sphere', the *Sphere of Pythagoras* apparently retained its popularity in the late medieval English corpus. 'Ratio spere Pictagore' is in sixteen manuscripts and 'Spera Apulei Platonici' in ten. The poem beginning 'Collige...', which usually accompanies the 'Spera Apulei Platonici' in early medieval manuscripts, takes on a life of its own after c. 1200. It is extant in eleven manuscripts, sometimes with other texts including the 'Spera Apulei Platonici', sometimes not. The *Sphere of Petosiris* seems to have lost its appeal by the later Middle Ages and is attested in only two manuscripts, one produced c. 1300, and the other, a partial copy, right at the end of the fifteenth century. The *Tetragonus subiectus* also fell rapidly out of circulation after c. 1125, and is only extant in one manuscript in the corpus.<sup>203</sup>

Alongside these early medieval 'Sphere' texts present in the late medieval corpus, several new texts are also attested in Latin. The majority of these texts do not add any new elements to the operation of the 'Sphere', but are simply new versions of the instructions. One of these new versions of the text is present in three manuscripts produced right at the end of the fifteenth century and opens 'Pronosticacio Pictagore summi philosophi secundam speram presentem' (appendix 6).<sup>204</sup> Another text of this type is extant in one witness, Cambridge, Gonville and Caius College Library MS 225/240, pp. 143-144, and opens 'Argumentum Pitagore philosophi de egris' (figures 8:a-b and appendix I:6). These are two examples of new late medieval texts, and one can conclude that, while these texts were indeed new adaptations, translations from the Graeco-Arabic or compositions, that no operational elements were added to the 'Sphere' texts in English manuscripts after c. 1200. The instructions may have been more elaborate or used different

<sup>202</sup> On lay literacy in fourteenth and fifteenth century England, see Alison Truelove, 'Literacy', in *Gentry Culture in Late-Medieval England* ed. Raluca Radulescu and Alison Truelove (Manchester: Manchester University Press, 2005), pp. 84-99.

<sup>203</sup> See Appendix II for a list of manuscripts.

<sup>204</sup> London, Society of Antiquaries Library MS 306, ff. 29v-30r; London, British Library MS Sloane 1620, ff. 70v-71v; and Oxford, Bodleian Library MS Ashmole 340, ff. 107r-108r.

examples, but the process of using the 'Sphere' remained essentially the same: the total for the name should be added to the number of the day of the moon and planetary weekday, and divided by thirty.

### Vernacularisation

As well as new versions in Latin, the 'Sphere' is also attested in Middle English and Anglo-Norman in manuscripts of English provenance. Ten manuscripts in the corpus contain Middle English versions of the text – five of which are a version entitled the *Golden Table of Pythagoras*. The *Golden Table* has been transcribed by Braekman, from Oxford Bodleian Ashmole MS 189.<sup>205</sup> Additionally, it has been edited by Voigts, basing her edition on Cambridge Gonville and Caius MS 336/725 ff. 63v-66v and utilising six other extant versions from the fifteenth and sixteenth centuries.<sup>206</sup> The *Golden Table* is a codified version of multiple 'Spheres', with a long accompanying text referring to three diagrams, the first two of which are round, the third of which is diamond-shaped. The first is to predict the life or death of a sick person; the second, which of a married couple will die first, and the third, to work out the veracity or falsehood of any matter in doubt. The second sphere is, in fact, a diagrammatic expression of the second onomancy found in *Si vis scire* (discussed in chapter 1). In Gonville and Caius 336/725, all the top remainders are even, accompanied by the statement 'Hic vivit maricatus' (the husband lives) and all the bottom remainders are even, accompanied by 'Hic mortui maricata' [sic] (the death of the wife). Clearly, though, this scribe, or whoever composed the original *Golden Table* was confused, or perhaps trying to align this diagram with the original 'Sphere' whose top half signifies 'life' and bottom half 'death', as the two statements 'Hic vivit maricatus' and 'Hic mortui maricata' clearly entail the same outcome. However, the accompanying Middle English text gets it right. The *Golden Table* is the result of a scribe bringing together three different kinds of onomancy into one coherent text. It sets out the diagrams by both aim (life or death; which of a married couple will die first; and veracity or falsehood), based on existing versions (the first

<sup>205</sup> Braekman, *Studies in Diet*, pp. 83-111.

<sup>206</sup> Voigts, 'Golden Table', pp. 131-139. The *Golden Table* is also found in Durham, University Library MS Cosin V. iv. 7, ff. 5v-10v; London, British Library MS Sloane 389, ff. 93r-95v; London, British Library MS Sloane 3580A, ff. 3r-6r; London, University College Library MS Angl. 6, ff. 33v-36r and 11r-v; and New York, Columbia University Library MS Plimpton 260, ff. 5r-13v.

and last diagrams are based on two different versions of the *Sphere of Pythagoras*).<sup>207</sup>

The text which accompanies the three diagrams is a fictionalised account of Pythagoras's acquisition of the so-called 'Golden Table', and was an attempt to add authority and solemnity to the procedure. It states that when Pythagoras was wandering the world, looking for knowledge, he came to the hall of a king called Apollonius, to whom he became a 'noble clerk & a greet'. Here, Pythagoras wrote many books for the king, and saw many wonderful things, including a rich table that the king had had made out of gold, silver, sable, and enamel, engraved with Arabic writing and the three diagrams in the text. The text then goes on to describe each diagram in detail and explains how each is to be used. Despite its length, and codification of multiple diagrams, this text of the *Golden Table* does not add any new elements to the operation of the 'Sphere'.

The remaining five Middle English versions of the 'Sphere' that date from the fifteenth century are seemingly unrelated, individual attempts to translate Latin versions of the 'Sphere'. London British Library MS Harley 3719, written at the start of the fifteenth century, contains multiple 'Spheres' on ff. 175v-176v (figure 15:a-c), with accompanying texts in both Latin and Middle English. The English version of the text (ff. 176r-v) is a more elaborate version of the *Sphere of Pythagoras*, which adds more detail and explanation to the operation of the 'Sphere'.<sup>208</sup> London British Library MS Harley 2274, written in the fourteenth or fifteenth century, contains a 'Sphere' with an English explanatory text f. 59v, a good deal of which is now missing (appendix I:9).<sup>209</sup> The fifteenth-century London British Library MS Sloane 3526 ff. 6v-7v contains only the Middle English text of the 'Sphere' with no diagram (appendix I:10).<sup>210</sup> London, British Library MS Additional 4698 and London, British Library MS Royal 17 A XXXII both contain the same Middle English 'Sphere' text, without an accompanying diagram (appendix I:11).<sup>211</sup> Additionally, three manuscripts of the corpus contain 'Spheres' in Anglo-Norman: Oxford, Bodleian

<sup>207</sup> The first 'Sphere' diagram is almost exactly the same as the 'Sphere' type listed by Sigerist; the third is based on Byrhtferth of Ramsey's rhomboid version of the 'Sphere' found in e.g. London, British Library MS Harley 3667, f. 5r (see chapter 3).

<sup>208</sup> London, British Library MS Harley 3719, ff. 176r-v. Transcribed in Voigts, 'Sphere of Life and Death', pp. 302-303.

<sup>209</sup> London, British Library MS Harley 2274, f. 59v.

<sup>210</sup> London, British Library MS Sloane 3526, ff. 6v-7v.

<sup>211</sup> London, British Library MS Additional 4698, ff. 2r-v; and London, British Library MS Royal 17 A XXXII, ff. 3r-v.

Library MS Fairfax 27, f. 69r, from the first half of the fourteenth century (figure 16 and appendix I:12),<sup>212</sup> London, Wellcome Library MS 559, ff. 45r-v and 47v (figures 17:a-c and appendix I:13),<sup>213</sup> and Cambridge Trinity College MS O.9.10 f. 75v from the fifteenth (figure 18 and appendix I:14).<sup>214</sup> All three perhaps represent separate translations from the Latin, as they are too different to have a common Anglo-Norman source.

As Chardonens points out, the vernacularisation of the 'Sphere' was relatively late compared to other kinds of texts. He believed that this might be connected to the Latin computistical setting of the early medieval 'Spheres'.<sup>215</sup> But it could equally be because a vernacular translation was not seen as necessary before this time because the Latin instructions were simple enough that they could be worked out by most people with some knowledge of Latin. The only plausible reason for a translation of such a text would have been because it was considered useful. Therefore it must be assumed that vernacularisation was not particularly necessary or desirable in the period pre-1400, as only one of the extant 'Spheres' in the vernacular – Oxford Bodleian MS Fairfax 27 f. 69r (figure 16 and appendix I:12) – dates from before that time.<sup>216</sup>

The 'Sphere' in continental Europe also made its way into vernacular translation. The most notable example, in terms of both the breadth of the text and manuscript survival, is the translation into German by Johannes Hartlieb, a Bavarian physician, called *Namenmantik*. Hartlieb was in the employ of several noblemen and dukes, including Louis VII, Duke of Bavaria (1413 – 1443, Albert VI, Archduke of Austria (1424 – 1463) and Albert II, Duke of Bavaria (1438 – 1460). He composed many works, including a book on forbidden arts and magic, *Puch aller verpoten kunst, ungelaubens und der zaubrey*, in 1456.<sup>217</sup> He also made German translations of many Latin works on medicine, including the *Trotula*, the group of treatises on women's medicine originating in the school of Salerno in the twelfth century that

<sup>212</sup> Oxford, Bodleian Library MS Fairfax 27, f. 69r.

<sup>213</sup> London, Wellcome Library MS 559, ff. 45r-v and 47r.

<sup>214</sup> Cambridge, Trinity College Library MS O.9.10, f. 75v.

<sup>215</sup> Chardonens, *Anglo-Saxon Prognostics*, p. 184.

<sup>216</sup> On the vernacularisation of medical and scientific texts in fifteenth-century England, see Irma Taavitsainen and Paivi Pahta, 'Vernacularisation of Medical Writing in English: A Corpus-Based Study of Scholasticism', *Early Science and Medicine* 3:2 (1998), pp. 157-185.

<sup>217</sup> On Hartlieb's life and works see Frank Fürbeth, *Johannes Hartlieb: Untersuchungen zu Leben und Werk* (Tübingen: Niemeyer, 1992).



circulated widely throughout the Middle Ages.<sup>218</sup> In the mid-1430s Hartlieb composed his *Namenmantik*, which brought together different 'Spheres' into one cohesive work. Whether *Namenmantik* represents Hartlieb's own work, or a translation, is not known. It survives in an impressive 18 manuscripts,<sup>219</sup> including the well-known 'Heidelberg Book of Fate', copied in Regensburg at the very end of the fifteenth century. This manuscript is now Heidelberg, University Library Cod. Pal. Germ. 832, and *Namenmantik* is present on ff. 130r-135r.<sup>220</sup>

After an introduction which is principally concerned with the outcome of combat for members of the Order of St. George, *Namenmantik* contains five 'Sphere' diagrams, each assigned to a different ancient authority: Pythagoras, Ptolemy, Plato, Aristotle, and Haly Abbas (d. c. 994 CE). On 'Pythagoras's Table', Hartlieb says:

Within it you will likely enough find everything that you ask, whether it goes well or ill. In the first place put the name or what you want to know with its number on the a, b, c. Add the man's age and take 30 from it as often as you can and look in the circle to see which path stands. This figure is divided into six parts. The central upper part means complete happiness and the victory of life and everything good. Then the right hand also means happiness and includes a small delay. But the left-hand side means good fortune though it will hardly come to pass. Then what stands below in the centre of the figure means a quick death, defeat and all things lost. Then below on the right hand side means loss, death, defeat and a small delay. But below on the left-hand side means loss, death and misfortune and defeat, but hardly that one weeps. He should win yet suffer in doing so.<sup>221</sup>

Of 'Ptolemy's Table' Hartlieb says:

The table is like Pythagoras' in all ways, in that you take another a, b, c and that instead of the age of the man you take the number of the day of the week and add it in, the day on which they will fight or get married or whatever you are asking about, take thirty away and look for it in Plato's circle.<sup>222</sup>

To use this table for illness, Hartlieb instructs:

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<sup>218</sup> On Hartlieb and the *Trotula* see *Secreta mulierum mit Glosse in der deutschen Bearbeitung von Johann Hartlieb* ed. Kristian Bosselmann-Cyran [Würzburger medizinhistorische Forschungen 36] (Pattensen/Hannover: Horst Wellm, 1985); and Monica Green, *Making Women's Medicine Masculine: The Rise of Male Authority in Pre-Modern Gynaecology* (Oxford: Oxford University Press, 2008), pp. 178-180 and 211-214.

<sup>219</sup> Fürbeth, *Johannes Hartlieb*, pp. 276-277.

<sup>220</sup> Heidelberg, University Library Cod. Pal. Germ. 832, ff. 130r-135r.

<sup>221</sup> Heidelberg, University Library Cod. Pal. Germ. 832, ff. 131v-132r. I am very grateful to Ben Pope for providing this translation.

<sup>222</sup> *ibid.*, f. 132r.

Take the age of the person and the number of their name and the number of the day on which the illness began and take thirty away from it and look for it in Plato's circle.<sup>223</sup>

'Plato's Circle' is then described, which can be used for all kinds of fortune-telling:

Now I wish to demonstrate for this figure of Plato's the a, b, c from which you wish to discover the fortune of a person in travelling for trade, jousting, taking part in a tournament, making a profit or whatever you want to know. Take the given name with the number of the a, b, c and the age of the man and take 30 away and look for it in Plato's circle.

In illnesses: take the number of the day on which he fell particularly ill and divide it by nine and look for it in the circle.<sup>224</sup>

'Aristotle's Table' is another way of predicting the outcomes of a variety of situations:

Now I want to demonstrate Aristotle's table. Within it you will find who will win when two fight or out of two strangers. Take the number of the day and the number of the name following the abc and divide it by nine. Thus you will find the answer.

Whether someone will live or die. Take the name of the day on which he fell ill, then if the number of the day is larger the patient will die but if his name is larger he will live.

Who will live longer out of friends. Take the name of each man individually and take seven away and look for it in the key.

Whether you will have good or bad luck at gaming. Take the number of the man and the number of the day and the number of the person playing with you and divide it by nine.

If however you do not know the name of the man, then take the number of your name on Aristotle's a, b, c and the number of the day and take 30 from it until you can't anymore and look for it in the six-part figure of Plato to see whether you will find good or bad luck.

For horse races. Take the number of the day and the number of the colour on Aristotle's abc and divide each by nine and look for it in the key to Aristotle.

If you want to know who will defeat the other in fighting or jousting, take each name and the number of the day and the colour of the horse and divide it down by nine and look for it in Aristotle's key.<sup>225</sup>

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<sup>223</sup> *ibid.*, f.132r.

<sup>224</sup> *ibid.*, f. 133r.

<sup>225</sup> *ibid.*, f. 134r.

The last version of the 'Sphere' in Hartlieb's treatise, 'Haly's Table', is essentially a tabular version of the *Victorious and Vanquished*.

*Namenmantik* discusses a variety of situations in which a 'Sphere' might be used, some of which are serious: life or death and illness, some of which are clearly for the purposes of entertainment. The inclusion of success at gaming, jousting, tournaments, and horse racing is relevant to the discussion of aristocratic chivalric duels in chapter 7, and it is especially telling that 'Aristotle's Table' states that there is a way to find the outcome even if the name of the person is not known: by using the operator's name. This links to the discussion in chapter 9 of the fortune-telling books of Christopher Cattan and Samuel Strangehopes, produced in the sixteenth and seventeenth centuries.

Hartlieb's *Namenmantik*, then, was written or translated by a physician for men in the highest ranks of society such as Louis VII of Bavaria, and was an attempt, either by Hartlieb or those that he was copying, to bring together different versions of onomancy into a single treatise, allocating different ancient authorities to different versions. These different versions were clearly intended for different types of prediction and operated in different ways. That it was written in the vernacular and survives in multiple manuscripts hints a wide readership, and demonstrates that right at the end of the fifteenth century, the 'Sphere' was circulating in the vernacular in other parts of continental Europe as well as England.

### Attributions

Chapter 3 discussed the principal attributions given to the 'Sphere' in the period c. 800 – c. 1125. In the corpus of manuscripts from later medieval England, some new pseudonymous authors are represented, as well as those also present in the early medieval period. In the later Middle Ages, Pythagoras remains by far the most popular pseudonymous of the 'Sphere', and Apuleius is also frequently attested. A further common attribution of the 'Sphere' in this period is to Apollonius. However, as Chardonens points out, it seems that Apollonius actually a corruption of Apuleius, noting that some pre-1125 manuscripts have 'Appollogius' for 'Apuleius' for example the aforementioned mid eleventh-century London, British Library MS Cotton Vitellius E XVIII, f. 14v which could easily become 'Apollonius' in later versions. More than ten manuscripts from in the late medieval English corpus contain a reference to Apollonius, and this always occurs in the 'Ratio spere

Pythagorae' version of the 'Sphere' – 'Ratio spere Pythagorae quam Appollonius descripsit'.<sup>226</sup> The 'Sphere' in the mid fourteenth-century London, British Library MS Egerton 2852, f. 111v-112r even registers this confusion, 'Si vis scire hanc speram Pintagoriam quam Appologius et Appuleus exoravit...' (appendix I:15).<sup>227</sup>

Thus, one is left with the distinct impression that the assignation to Apollonius grew from scribal error rather than intention. But this ascription still makes sense, which might explain its popularity. Apollonius was a very common name in ancient Greece and Rome, and there are at least twenty known philosophers and religious leaders of that name who flourished from c. 400 BCE – c. 400 CE in Greece and Rome. One of the best known is Apollonius of Tyana (c. 15 – c. 100 CE), a Greek Neopythagorean philosopher. As well the strong association with the Pythagorean school. In *The Life of Apollonius of Tyana*, which is extant in several manuscripts of late medieval provenance.<sup>228</sup> Philostratus (c. 170 – c. 250 CE) ascribed to Apollonius the ability to know about death *in absentia*. When the Emperor Domitian (81 – 96 CE) was murdered on September 18 in the year 96, Apollonius was said to have witnessed the event in Ephesus at around midday on the day it happened in Rome. He told his companions, 'Have no fear, gentlemen, since the tyrant was slaughtered today ...'.<sup>229</sup> Philostratus also ascribes to his subject the power of the prediction of plague.<sup>230</sup> Thus, while the attribution makes sense given what we know about Apollonius of Tyana's links to Pythagoreanism and the prediction of death and disease, it was nevertheless probably unintentional. Another post-1125 attribution that probably arose from a misreading of Apuleius was to Pelagius, for example in London, British Library MS Harley 3383, f. 85, composed in the fifteenth century. Pelagius could be a reference to several people, including the well-known fourth-century heretic, two popes and a several saints, but there is no reason to believe that this was any more than a scribal error.

<sup>226</sup> Manuscripts that attribute the 'Sphere' to Apollonius/Apollogius, with spelling variations, are Oxford, Bodleian Library MS Bodley 177, f.1r; Oxford, Bodleian Library MS Bodley 26, f. 207r; Oxford, Bodleian Library MS Digby 29, ff. 193-194; Oxford, Bodleian Library MS Rawlinson C. 506, ff. 15v-16r; Cambridge, Trinity College MS O.2.5, ff. 10r-11r; Cambridge, Trinity College MS O.2.45, f. 1r; London, British Library MS Cotton Vespasian E VII, f. 23v; London, British Library MS Sloane 521, f. 45v; London, British Library MS Royal 17 A XXXII, f. 2v; London, British Library MS Egerton 843, ff. 31v-32r; London, British Library MS Egerton 2852, f. 111v-112r; and London, British Library MS Harley 3719, ff. 175v-176v.

<sup>227</sup> Chardonnens, *Anglo-Saxon Prognostics*, p. 181, n. 1.

<sup>228</sup> Philostratus, *The Life of Apollonius of Tyana* ed. and trans. Christopher P. Jones, vol. I (Cambridge: Harvard University Press, 2005), p. 22.

<sup>229</sup> Philostratus, *Apollonius of Tyana* VIII:26, ed. Jones, vol. II, p. 413.

<sup>230</sup> Philostratus, *Apollonius of Tyana* ed. Jones, vol. II, pp. 30-31.

Hartlieb's *Namenmantik* contains new attributions, two of which (Plato and Ptolemy) are also present in a late fifteenth-century manuscript in English. Oxford, Bodleian Library MS Ashmole 396 contains several astrological and onomantic methods on ff. 200r-203v, beginning with a version of the 'Sphere'. This section opens on f. 200r with 'Here begynneth the art of Ptholome, Plato and of Putagoras'.<sup>231</sup> Two attributions are represented here: Ptolemy (c. 90 – c. 168 CE), who seems to be a new assignation, and Plato, who, as discussed in chapter 5, is mentioned in the context of Apuleius Platonicus in many other medieval examples of the 'Sphere'. The attribution to Ptolemy is in harmony with the content of the 'Sphere'. Ptolemy was a Greek mathematician and astronomer to whom many texts of astronomy are both authentically and spuriously ascribed, and so the addition of his name to a set of astrological-onomantic works is completely appropriate. Even outside the context of Apuleius Platonicus, the attribution to Plato is apt. Plato's *Timaeus*, an extremely popular work throughout the Middle Ages, teems with references to number as the basic unit of nature, as seen in Chapter 2. The 'Sphere' is also dedicated to Plato alone in the first of three 'Spheres' in the fourteenth century Cambridge, Trinity College Library MS O.2.5, f. 10r (figure 19:b)<sup>232</sup> and in the fifteenth-century Cambridge, Trinity College Library MS O.9.10, f. 75v (figure 18).<sup>233</sup> Plato is further acknowledged as a separate authority from Apuleius in the 'Sphere' text in Oxford, Bodleian Library MS Bodley 177, f. 22r, 'Spera Apulegii et Platonici...' (figure 20c).<sup>234</sup>

The 'Sphere of Life and Death' in English manuscripts from the period c. 1200 – c. 1500, saw, then, some new attributions, but those that were intentional were seemingly rare. Apollonius and Pelagius were almost certainly credited through scribal error; Ptolemy from a linking between onomantic and astrological procedures; and Plato from a separation of his name from Apuleius's. But the main attributions remained as they had been in the early Middle Ages – to Pythagoras and Apuleius. Clearly, their names still retained as much influence as the Middle Ages drew to a close as they had in the period pre-1125.

<sup>231</sup> Oxford, Bodleian Library MS Ashmole 396, ff. 200r-203v.

<sup>232</sup> Cambridge, Trinity College Library MS O.2.5, f. 10r.

<sup>233</sup> Cambridge, Trinity College Library MS O.9.10, f. 75v.

<sup>234</sup> Oxford, Bodleian Library MS Bodley 177, f. 22r.

## Ownership

A portion of the manuscripts in the corpus bear evidence of ownership. These manuscripts indicate the wide socio-cultural and geographic ownership of the 'Sphere' in late medieval England. That university-trained physicians of the highest rank owned copies of the 'Sphere' is demonstrated beyond doubt by what can be retraced of the library of Roger Marchall (d. 1477), graduate of medicine from Peterhouse Cambridge, later physician to Edward IV. Thanks to his habit of making selective contents lists in a distinctive hand, it is known that Marchall acquired, and then bequeathed to Peterhouse, three manuscripts in the corpus. These are Cambridge, Peterhouse Library MS 222 (fig. 22), London, British Library MS Harley 531 ('Sphere' now missing), and London, British Library MS Harley 267.<sup>235</sup> Chapter 6 consists of a full discussion of the medical context of the 'Sphere' in late medieval England.

Many families of the gentry and aristocracy in late medieval England were also interested in scientific and prognosticatory texts.<sup>236</sup> Cambridge Trinity College MS O.1.57 can be placed with a specific family of the lower gentry - the Haldenbys of Isham, Northamptonshire, written in the first half of the fifteenth century. This manuscript once contained a 'Sphere' which is no longer present as the last two quires of the manuscript are missing, which is known about thanks to a table of contents in a contemporary hand on the fourth flyleaf (figure 21). A discussion of gentry and aristocratic interest in the 'Sphere' takes place in chapter 7.<sup>237</sup>

Some manuscripts can be sited at particular Oxford and Cambridge college libraries in the later Middle Ages. London British Library MS Royal 12 E XXV was produced c. 1300 in Oxford, and can be linked through strong internal evidence to the library at Merton College.<sup>238</sup> Oxford Bodleian MS Digby 29 is written in the hand of Richard Stapledon, Master of Balliol College c. 1430, which he bequeathed to the college to

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<sup>235</sup> Cambridge, Peterhouse Library MS 222; London, British Library MS Harley 531; London, British Library MS Harley 267. On Marchall's ownership of these manuscripts, see Linda Ehrsam Voigts, 'A Doctor and his Books: the Manuscripts of Roger Marchall (d. 1477)', in *New Science out of Old Books: Studies in Manuscripts and early Printed Books in Honour of A.I. Doyle*, ed. Richard Beadle and A. J. Piper (Aldershot: Scholar Press, 1995), pp. 249-314.

<sup>236</sup> On the commonplace books of householders see Taavitsainen, *Middle English Lunaries*, pp. 148-152.

<sup>237</sup> Cambridge, Trinity College Library MS O.1.57, f. 4r.

<sup>238</sup> London, British Library MS Royal 12 E XXV. On provenance, see Neil R. Ker, 'Oxford College Libraries Before 1500', in *The Universities in the Late Middle Ages* ed. Jozef Ijsewijn and Jacques Paquet (Leuven: Leuven University Press, 1978), p. 298.

be chained in its library.<sup>239</sup> And London, British Library MS Sloane 1620, produced c. 1500, was present in the library at University College, Oxford in the early modern period, and was possibly produced there, or at least in Oxford.<sup>240</sup> As previously discussed, the Cambridge physician Roger Marchall owned several manuscripts containing 'Spheres', which he bequeathed to the library of Peterhouse, Cambridge. These would have been present in that library from c. 1477 onwards (a discussion of scholar interest in the 'Sphere' will be found in Chapter 8).

It was not just medical men, upper class families and universities which owned copies of the 'Sphere' in late medieval England. Monastic interest in the 'Sphere' did not diminish in later medieval England. Cambridge, Trinity College MS O.2.45 and London, British Library MS Egerton 843, once a whole manuscript and both containing near-identical 'Spheres' were copied at Cerne Abbey, Dorset, in the second half of the thirteenth century.<sup>241</sup> Cambridge, Gonville and Caius MS 225/240 was written at Bury St. Edmunds Abbey at the end of the thirteenth century.<sup>242</sup> And London, British Library MS Royal 12 G IV is a medical miscellany that was in the ownership of John of Greenborough, infirmarer of St. Mary's Priory, Coventry. On f. 187v is a colophon which leaves little doubt that the manuscript, up to this point at least, was bound together under John's ownership (figure 22:b). The reference to 'Gilbertinus' is leaves no doubt of this:

Brother John of Greenborough, for 30 years and more recently infirmarer, bought this book called Gilbertinus for the use of the patients in the church of Coventry, and that which is written on new pages was compiled from the practical [work] of English, Scottish, Jewish, Saracen, Lombard and Salernitan physicians and used by many doctors in the compilation of their medicine. Much in the new pages written above is proved true through practice, but several physicians do not wish to endorse it, because many of them are ignorant of practice, but spread many empty words into the wind'.<sup>243</sup>

<sup>239</sup> Oxford, Bodleian Library MS Digby 29. On provenance, see R. A. B. Mynors, *Catalogue of the Manuscripts of Balliol College, Oxford* (Oxford: Clarendon, 1963), p. 382.

<sup>240</sup> London, British Library MS Sloane 1620, f. 56r.

<sup>241</sup> Cambridge, Trinity College MS O.2.45 and London, British Library MS Egerton 843. On date and provenance, see Montague Rhodes James, *The Western Manuscripts in the Library of Trinity College, Cambridge: A Descriptive Catalogue*, vol. III (Cambridge: Cambridge University Press, 1902), p. 151.

<sup>242</sup> Cambridge, Gonville and Caius College Library MS 225/240. On date and provenance, see Antonia Gransden, 'Some Manuscripts in Cambridge from Bury St. Edmunds Abbey: Exhibition Catalogue', in *Bury St. Edmunds: Medieval Art, Architecture, Archaeology and Economy* ed. Gransden [British Archaeological Association Conference Transactions 20] (London: British Archaeological Association, 1998), p. 228.

<sup>243</sup> 'Fratr Iohannes de Grenborough per xxx annos et plus nuper infirmarius emebat istum librum vocatum Gilbertinum ad utilitatem infirmorum in ecclesia Couentre existentium, et ea

A now-missing manuscript containing a 'Sphere' once belonged to John Erghome (fl. c. 1385 – 1386), Austin friar, and later master regent and prior of the convent at York. Erghome was also an Oxford graduate, and this book was one of several that he bequeathed to the abbey on his death. It was still in the possession of the abbey in the fifteenth century.<sup>244</sup> And a colophon reveals that a Franciscan named John Holbeche was the scribe of Cambridge, Trinity College MS O.9.10, in the fifteenth century.<sup>245</sup> Therefore, monastic interest in the 'Sphere' continued from the early Middle Ages to the very end of the period (a discussion of monastic interest in the 'Sphere' is in chapter 8).

Manuscripts which can be placed in the ownership of particular people, families or institutions in late medieval England demonstrate the societal range that such devices belonged to. The geographical range represented by these few manuscripts is also wide, from the south of the country (Cerne), to the Midlands (Coventry, Northamptonshire, and Oxford), East Anglia (Bury St. Edmunds and Cambridge) and the north of England (York).

### Signs of use

One way of deciphering whether the 'Sphere' was actually used, is to look for annotations to the text and/or diagram by scribes. Some continental manuscripts contain such additions. As noted in the introduction, Sigerist analysed marginal scribbles next to the 'Sphere' in the tenth-century Vercelli, Biblioteca Capitolare MS CLXXXVII (Arab. 42), f. 143r. He postulated that someone had tried to work out the outcome of the process, as in the right-hand margin two sequences of numbers are noted: 'iii xxi xxiii xv xxiii v xv xxi v viiii' and 'xxx xxx xxx xxvi'. The first probably represents the number equivalents of the person's name, and the second the outcome of the number after dividing by 30. Sigerist postulated several possibilities

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que in nouis quaternis sunt scripta compilauit a practicis phisicorum Anglie Hibernie ludeorum Saracenorum Lombardorum et Salernita[no]rum et expendebat multa in medicis circa compilationem illarum medicinarum. Multa in nouis quaternis suprascripta per practicam sunt vera, set plures phisici nolunt approbare ea, quia multi illorum ignorant practicam sed multa verba et vacua in ventum seminant'. London, British Library MS Royal 12 G IV, f. 187v.

<sup>244</sup> Humphreys, *The Friars' Libraries*, p. 96.

<sup>245</sup> Cambridge, Trinity College Library MS O.9.10, f. 66v. On date, see James, *The Western Manuscripts in Trinity*, vol. III, p. 448-451.



for the name of the person in question, concluding that the most likely was Adlemuelus.<sup>246</sup>

As for the late medieval English corpus, Oxford, Bodleian Library MS Bodley 26, produced in the thirteenth or fourteenth centuries, contains two 'Spheres' ff. 207r and 216v. Next to the first of these 'Spheres', below the diagram, are Roman numerals which may represent workings-out (figure 23:a).<sup>247</sup> The only other surviving evidence of signs of use of the 'Sphere' in late medieval England is a later addition to an early manuscript. London, British Library MS Cotton Caligula A XV is a composite codex which once formed a whole manuscript with London, British Library MS Egerton 3314.<sup>248</sup> The second section, ff. 120-153, was written in England in the second half of the eleventh century, and contains a 'Sphere' on f. 125v. This 'Sphere' is accompanied by a note in a later, perhaps thirteenth century, hand, which says that doubled letters should not be counted twice.<sup>249</sup> Annotations are also present in a late medieval continental manuscript. The 'Sphere' diagram in Oxford Bodleian Library MS Canon. Misc. 307, f. 62v (figure 24), produced in late fourteenth-century Italy, includes two sets of planetary weekday numbers, as well as two sets of number-letter correlations.<sup>250</sup> Perhaps this scribe had come across two versions, and wanted to note the variants. In any case, the annotations to the 'Sphere' itself are indicative of an active interest in the device.

The rarity of annotations next to 'Sphere' texts and diagrams does not mean that this device was not used. Those who possessed 'Spheres' in more luxurious manuscripts would perhaps have been less likely to scribble workings on them than those who owned 'Spheres' copied into notebooks. As discussed earlier, working codices are far less likely to have survived through daily wear and tear. Furthermore, to try and discover workings-out which might exist separate from 'Sphere' texts and diagrams would be a futile task. Many working books survive from late medieval England, for example that of John Gylbert, a fifteenth-century astrology scholar of Nicholas Collys in London, now Oxford, Bodleian Library MS

<sup>246</sup> Sigerist, 'Sphere of Life and Death', p. 299.

<sup>247</sup> Oxford, Bodleian Library MS Bodley 26, f. 1r.

<sup>248</sup> On this manuscript, and its relation to London, British Library MS Egerton 3314, see P. J. Willetts, 'A Reconstructed Astronomical Manuscript from Christ Church Library Canterbury', *British Museum Quarterly* 30 (1966), pp. 22-30.

<sup>249</sup> 'Littera duplari. Non vult nec bis numerari'. London, British Library MS Cotton Caligula A XV, f. 125v. Discussed in Chardonens, *Anglo-Saxon Prognostics*, p. 140.

<sup>250</sup> Oxford, Bodleian Library MS Canon. Misc. 307, f. 62v.

Ashmole 191 ff. 1r-82r.<sup>251</sup> However, the calculations one might do to work out the answer when using a 'Sphere' may well not include a clear overview of purpose. One must be content, then, with surmising that the 'Sphere' was intended to be used due to its high survival rate in a wide variety of manuscript contexts, and the scant evidence of annotations to earlier medieval 'Spheres' and those of continental provenance.

### Conclusion

New variations in the 'Sphere' text and diagram did appear after c. 1200, and circulated at the same time as older versions in Latin translation (from before c. 1125). These textual variations were perhaps a combination of both scribal authorship which modified existing Latin translations, and new translations from the Graeco-Arabic tradition. Translation into the vernacular occurred relatively late compared to some other treatises, although the 'Sphere' was translated into both Middle English and Anglo-Norman. Translation into two vernacular languages indicates a potentially wide readership. Additionally, some new attributions appeared after c. 1200, but it seems that most of these resulted from scribal error. Several manuscripts in the corpus can be assigned to particular people and institutions, which is very useful in building up a picture of ownership and use in the later Middle Ages. Annotations indicating use are at least present in some continental manuscripts, and there is no reason to think that the lack of annotations in the late medieval English corpus indicates that the 'Sphere' was not used by those who owned, and perhaps copied, it. However, despite this popularity in a variety of manuscript contexts, the 'Sphere' was illicit divination in the Middle Ages. This illicit nature may explain the dearth of signs of use within manuscripts. The legal status of the 'Sphere' will be discussed in chapter 5.

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<sup>251</sup> Jenks, 'Astrometeorology', p. 194.

## Chapter 5

### The 'Sphere' as illicit divination

#### Introduction

Chapter 4 established that the 'Sphere of Life and Death' is extant in a large corpus of manuscripts produced in late medieval England. However, as discussed in chapter 1, the 'Sphere' belongs in the category of divination: a practice which had been condemned since the time of the late Roman Empire. This had not always been the case: in ancient Greece and Rome the systems of divination and polytheistic religion were not at odds with one another. In fact, certain forms of divination were a key part of Greek and Roman religion. It was with the rise of monotheistic Christianity as the principal religion of the Latin West that the divinatory arts became problematic. The first part of this chapter will outline the changes in divination's status from the ancient to medieval eras, and then discuss the main theological condemnations of divination of all kinds, from Augustine in the fourth century through to Thomas Aquinas in the thirteenth. An analysis of the legal context of the 'Sphere' will follow, which will look at a specific condemnations of this device in canon law, repeated in various pastoral manuals and self-help treatises. This chapter will then focus on the practical legal situation: was anyone prosecuted for using a 'Sphere' in the Middle Ages, and, if so, did the punishment match what was laid out in prescriptive legal material? There are no known medieval prosecutions for the use of a 'Sphere', but a handful of prosecutions for similar crimes are attested. However, the punishments are relatively lenient, usually involving the relinquishing of books and some kind of public penance.

It is worth beginning this discussion of the illicit status of the 'Sphere' with manuscript evidence. Vatican, Biblioteca Apostolica Vaticana MS Palat. lat. 176 is a mainly theological volume produced at the Benedictine monastery of St. Amand in the mid-ninth century. This codex contains St. Jerome's *Commentari in Matthaeum* ff. 2r-86r, and Augustine's *In Iohannem* ff. 87r-161r. From two *ex libris* inscriptions f. 1r and 86r it is known that this book was housed in the monastic library at Lorsch from at least the early fourteenth century. However, its location between

composition at St. Amand and arrival at Lorsch is not traceable.<sup>252</sup> There are three separate 'Spheres' present in this manuscript, all of which are additions by a later scribe: the *Letter of Petosiris to Nechepso* ff. 1r-v, the *Tetragonus subiectus* f. 4v and the *Sphere Pictagorae* f. 162v. The scribe clearly fitted the 'Sphere' texts and diagrams into the manuscript where space was available: at the beginning and end of the manuscript, and on the blank f. 4v between texts (figures 25:a-d). Each 'Sphere' in this manuscript has been crossed through, accompanied by the words ANATHEMA SIT in red. Unfortunately, as the red writing is in unremarkable and neat rustic capitals, it is impossible to know whether the crossing out is in a near-contemporary or much later hand.<sup>253</sup> Either way it was clearly not seen as necessary to destroy completely the texts or diagrams or render their operation impossible by, for example, obscuring or erasing fundamental elements of operation, such as instructions or number-letter correlations. A contemporary or near-contemporary who owned or came across this manuscript clearly felt the need to make it clear that the use of the 'Sphere' was not permissible for pious Christians. Perhaps the 'Spheres' were left intact and usable so that a person would know that the 'Sphere' was illicit if s/he came across one in a different manuscript.

#### Divination's changing status from Antiquity to the Middle Ages

In ancient Greece and Rome, divination was intimately bound up with mainstream religion and therefore not considered problematic until the period of the Roman Empire. The Greeks employed a wide range of divinatory practices. *Prometheus Bound*, by Aeschylus (c. 525 – c. 455 BCE) says that Prometheus taught humans a range of techniques, including oneiromancy (dream-interpretation) and haruspicy (the reading of animal entrails). As well as this, the Greeks consulted oracles, including the institutional Oracle at Delphi to obtain knowledge of the future.<sup>254</sup> In Republican Rome, too, divination was a major part of state religion. Of the three main colleges of priests, one provided auguries, and the other oversaw *Quindecimviri sacris faciundis* (i.e. the consultation and interpretation of the Sibylline books). Divination in ancient Greece and pre-Christian Rome, then, was a state-led practice, intimately bound to the will of the gods. This situation began to change in the later Imperial age c. 100 – c. 500 CE. Sarah Iles Johnston argues that this was

<sup>252</sup> Vatican, Biblioteca Apostolica Vaticana MS Palat. lat. 176, ff. 1r-v, 4v and 162v. On date, and provenance see Bernhard Bischoff, *Die Abtei Lorsch im Spiegel ihrer Handschriften* (Lorsch: Verlag Lawrissa, 1989), p. 118.

<sup>253</sup> I am grateful to Marigold Norbye for advice on the hand in this manuscript.

<sup>254</sup> Iles Johnston, *Ancient Greek Divination*, pp. 7-8.

for three reasons. Firstly, there were increasing encounters with different cultures and divinatory procedures became intermingled. Secondly, the number of utopian religious systems concerned with the fate of the body after death, most importantly Christianity, was expanding. Thirdly, there was a repeated attempt to stamp out diviners and magicians, as emperors became concerned about predictions concerning the length of their reigns and lives. For this reason, it was made illegal to practise divination outside the emperor's court.<sup>255</sup> When early Christianity encountered divination, it was naturally seen as problematic. As outlined in the Introduction, divination was seen as contrary to both God's divine providence and the doctrine of man's free will. Augustine outlines both of these in his *De civitate Dei* book V. In refuting Cicero's treatise on divination, he states:

Against such profane and irreverent impudence we assert both that God knows all things before they happen and that we do by our own free will everything that we feel and know would not happen without our volition. We do not say that everything is fated; in fact we deny that anything happens by destiny.<sup>256</sup>

As well as this, the ancient Greek and Roman gods became demons in the eyes of the monotheistic Christianity. Augustine made this clear in his *De Doctrina Christiana*:

The influence of all these things varies in proportion to the extent of the agreement with demons achieved by presumptuous minds thought such kinds of common language. But they are all brimful of dangerous curiosity, agonising worry, and deadly bondage. They were not observed as a result of their influence, but they gained their influence as a result of being observed and recorded. This is how they came to have different effects on different people, according to their particular thoughts and fancies. Spirits who wish to deceive someone devise appropriate signs for each individual to match those in which they see him caught up through his speculations and the conventions he accepts.<sup>257</sup>

The influence of Augustine's threefold objection to divination throughout the Middle Ages cannot be overestimated. Accompanying medieval condemnations was a standardised list of condemned magic and divinatory arts, ultimately derived from Varro, which was picked up by Augustine in *De civitate Dei* and copied, virtually unchanged, throughout the Middle Ages.<sup>258</sup> This list, while perhaps reflective of certain practices in the Roman Empire, was soon to become a literary *topos*. The

<sup>255</sup> Iles Johnston, *Ancient Greek Divination*, pp. 151-152.

<sup>256</sup> Augustine, *City of God* I:v:9, trans. Bettenson, pp. 191-192.

<sup>257</sup> Augustine, *De Doctrina Christiana* II:xxiv:37, ed. and trans. R. P. H. Green (Oxford: Oxford University Press, 1995), pp. 100-101.

<sup>258</sup> Augustine, *City of God* I:vii:35, trans. Bettenson, pp. 296-297.

condemned practitioners on this list are *magi* (sorcerors in general), necromancers (those divining by the interrogation of the dead), hydromancers (those gazing into water), geomancers, hydromancers, aeromancers and pyromancers (diviners by the four elements), diviners, *incantatores* (those using words and incantations), *arioli* (idol-worshippers), *aruspices* (examiners of animal entrails), *augures* (those who divine by the calls of birds), *auspices* (diviners by the flight of birds), *pythones* (those using Pythonic divination), *astrologi* and *genethliaci* (those drawing up horoscopes), *mathematici*, *horoscopi* and *sortilegi* (those who use the *sortes sanctorum*), *salisatores* (those who divine by physical movements) and *praestigium* (illusionists). If this list was reflective of any actual practices by the time it reached the early Middle Ages, this was due to coincidence more than anything else.<sup>259</sup> The first systematic patristic condemnation of divination was that of Augustine. As we have seen, Augustine roundly condemned all divinatory and magical arts in two of his most important works. He took the standard list of practices and added very little of his own to it.<sup>260</sup> This list does not include onomancy or anything resembling it, which is not surprising, since no word for this form of divination existed until the early modern period (see chapter 1). The list also contains no reference to anything like a 'Sphere'. The explicit linking of divination with demons, and the inherited list of practices, however, are crucial to our understanding of later medieval condemnations of divination in general.

While Augustine's *De Doctrina Christiana* roundly condemned all forms of divination, his gloss on Psalm 30:16 shows he felt that, in certain pertinent situations, the drawing of lots *could* be licit:

*My lots are in thy hands:* not in men's hands, but in thy hands. What are these lots? Why lots? When we hear of lots, we are not to look for fortune-tellers. A lot is not something evil, but it is something showing the will of God when man is uncertain. For the apostles cast lots when Judas, who had betrayed our Lord, perished, and as it was written concerning him, *went to*

<sup>259</sup> On this standardised list of practices and its transmission to the Middle Ages, see Veenstra, *Magic and Divination*, pp. 105 and 154-159; and Jan R. Veenstra, 'Cataloguing Superstition: A Paradigmatic Shift in the Art of Knowing the Future', in *Pre-Modern Encyclopaedic Texts: Proceedings of the Second COMERS Congress, Groningen, 1-4 July 1996* ed. Peter Binkley (Leiden: Brill, 1997), pp. 169-180.

<sup>260</sup> On Augustine's critique of divination, see William E. Klingshirn, 'Divination and the Disciplines of Knowledge According to Augustine', in *Augustine and the Disciplines: From Cassiciacum to Confessions* ed. Karla Pollmann and Mark Vessey (Oxford: Oxford University Press, 2005), pp. 113-140; Robert A. Markus, 'Augustine on Magic: A Neglected Semiotic Theory', *Revue des Etudes Augustiniennes* 40 (1994), pp. 375-388; and Fritz Graf, 'Augustine and Magic', in *The Metamorphosis of Magic from Late Antiquity to the Early Modern Period* ed. Jan N. Bremmer and Jan R. Veenstra (Leuven: Peeters, 2002), pp. 87-103.

*his own place*: they began to inquire who should be appointed to replace him. Two were chosen by human judgment, and of those two one was singled out by the divine judgment: God was consulted about the two, as to which of them He wished, *and the lot fell upon Matthias*.<sup>261</sup>

While the drawing of lots to make a choice might seem like a divinatory practice, it is clear that by Augustine's logic this is not demonic divination: in this case, it is God's judgment that is sought in order to make a decision, not to obtain secret knowledge. Augustine clearly felt the need to demonstrate why this potentially problematic Biblical incident was not divination. However, this perhaps introduces a small element of ambivalence in relation to the illicit nature of the divinatory arts.

The next significant condemnation of divination, influenced by Augustine, was in Isidore of Seville's *Etymologiae*, a sprawling encyclopedia which sought to explain the origins of the nomenclature of every single aspect of human knowledge (discussed in chapter 2). The *Etymologiae* was clearly brought together from an array of sources,<sup>262</sup> and Isidore's list of magic and divinatory practices was based on that of Augustine (or from an earlier ancestor). Isidore's and Augustine's lists in turn were copied virtually unchanged into the condemnations of later medieval theologians and intellectuals. These writers took either a moralist or a rationalistic approach to magic and divination. Those with a moralistic approach are exemplified by the *Summa Theologica* of Thomas Aquinas, which censured divination on the basis of its involvement with demons. Nicole Oresme, however, condemned divination on the basis of its inefficacy. John of Salisbury occupied a middle position between the moralistic and rationalistic in his *Policraticus*. He took the approach that divination was nonsensical, while at the same time having moral objections to its practice.<sup>263</sup>

Despite coming from very different backgrounds and taking different approaches, John of Salisbury and Aquinas made one significant addition each to the standardised list of practices that they copied. John, as well as expanding on the meanings of the practices that were in the list, added chiromancy - divination by the lines on the hand (discussed in chapter 1).<sup>264</sup> Later in his *Policraticus*, John makes

<sup>261</sup> Augustine, *Exposition on the Psalms*, in *St. Augustine on the Psalms*, trans. Scholastica Heagin and Felicitas Corrigan, vol. II (Westminster, Ma. and London: Longmans, Green and co., 1961), pp. 41-42.

<sup>262</sup> Isidore of Seville, *Etymologiae* VIII.ix.1-28, trans. Barney et al, pp. 181-182.

<sup>263</sup> Veenstra, *Magic and Divination*, p. 154.

<sup>264</sup> John of Salisbury, *Policraticus* I:11-12, in *Frivolities of Courtiers and Footprints of Philosophers: Being a Translation of the First, Second and Third Books and Selections from*

an allusion to the actual practice of chiromancy. In a chapter on soothsayers and prophets, he condemns Thomas Becket, archbishop of Canterbury (1162 – 1170) for having practised this art when he was Lord Chancellor to Henry II:

Palmists also boast that they are acquainted with the truth which is hidden in the lines of the hand. It is unnecessary to attack with reasons an error which has no foundation in reason, although reason does assail them in that they lack reason. There is one question which I in all seriousness put to you, if you will but listen to me. What do these mountebanks, since I doubt not that they are known to you, divulge when questioned with regard to matters of doubt? When the king's army was preparing to advance against the Snowdon Welsh, in what respect did the soothsayers, when consulted, give you warning to advance? To be sure the mystery of truth ought not to be required of him who, because of a chamberlain's compliance, should be regarded as the deviser of lies rather than the interpreter of hidden truth.<sup>265</sup>

This refers to Henry's campaign for overlordship of Wales in summer 1157. This addition of chiromancy to the list, and John's specific condemnation of an instance in which it may have been used, is significant. Unlike the other practices on the list, it is probably an example of known contemporary activity. Burnett has shown that chiromancy was virtually unknown in the Latin West before the twelfth century. The earliest surviving example in a western manuscript was copied c. 1160 into the Eadwine Psalter, now Cambridge, Trinity College Library MS R. 17.1, f. 282r.<sup>266</sup>

In the 1260s, Thomas Aquinas wrote his *Summa Theologica*, and dedicated II-II:95 solely to the topic of divination. Aquinas outlines his objections to divination:

As stated above (Article 2), all divinations seek to acquire foreknowledge of future events, by means of some counsel and help of a demon, who is either expressly called upon to give his help, or else thrusts himself in secretly, in order to foretell certain future things unknown to men, but known to him in such manners as have been explained in The First Part.<sup>267</sup>

Aquinas, then, makes it clear that all divination operates through demonic assistance. Additionally, the *Summa Theologica* added spatulimancy (also called scapulimancy: divination by the shoulder-blades of animals) to the standard list of occult practices. Aquinas states 'the divination which is taken from signs appearing

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*the Seventh and Eighth Books of the Policraticus of John of Salisbury* ed. and trans. Joseph B. Pike (Oxford: Oxford University Press, 1938), p. 42.

<sup>265</sup> John of Salisbury, *Policraticus* II:27, ed. Pike, pp. 127-128.

<sup>266</sup> Charles Burnett, 'The Earliest Chiromancy in the West', *Journal of the Warburg and Courtauld Institutes* 50 (1987), p. 189. Reprinted in Burnett, *Magic and Divination*, X.

<sup>267</sup> Thomas Aquinas, *Summa Theologica* II-II:95: ad. 3., trans. Fathers of the English Dominican Province, vol. XI (London: Burns Oates and Washbourne Ltd., 1922), p. 196.



in the shoulder-blades of an animal is called “spatulamancy”.<sup>268</sup> This is again a possible allusion to actual practice, since Gerald of Wales (c. 1146 – c. 1223) in his *Itinerarium Cambriae* stated that Flemish settlers in Pembrokeshire in the wake of the Norman Conquest of 1066 practised scapulimancy.<sup>269</sup> As well as adding spatulimancy to the inherited list of divinatory practices, the *Summa Theologica* also makes two important points about divination in general. Firstly, Aquinas took up Augustine’s theme of lot-drawing, making plain all the situations in which drawing lots was not licit. But this is not without a caveat. He concludes ‘If, however, there be urgent necessity it is lawful to seek the divine judgment by casting lots, provided due reverence be observed’.<sup>270</sup> Secondly, he discussed the difference between divination and the prognostications of physicians:

Other causes produce their effects, not of necessity and always, but for the most part, yet they rarely fail: and from such like causes their future effects can be foreknown, not indeed with certainty, but by a kind of conjecture, even as astrologers by considering the stars can foreknow and foretell things concerning rains and droughts, and physicians, concerning health and death.<sup>271</sup>

Aquinas’s assertions that, in certain situations, seemingly-divinatory practices could be licit; and that the prognostications of doctors were quite separate from illegal divination, added a small element of doubt to the repudiation of the divinatory arts in relation to the ‘Sphere of Life and Death’.

#### Condemnations of the ‘Sphere of Life and Death’

While none of the authors examined include a category akin to ‘onomancy’ or the ‘Sphere’ explicitly, John of Salisbury, while describing fortune-tellers, talks of a practice that could be the use of a ‘Sphere’: ‘tabulae quae Pitagorica appellantur’, literally ‘Tables which are called Pythagorean’:

Fortune tellers are they who, under the name of false religion by a sort of superstitious observation of things, promise certain results: for example, the lots of apostles and prophets and those of fortune tellers; the use of the

<sup>268</sup> Thomas Aquinas, *Summa Theologica* II-II:95: ad. 3, trans. Fathers of Dominican Province, p. 197.

<sup>269</sup> Burnett, ‘Arabic Divinatory Texts and Celtic Folklore: A Comment on the Theory and Practice of Scapulimancy in Western Europe’, *Cambridge Medieval Celtic Studies* 6 (1983), p. 33. Reprinted in Burnett, *Magic and Divination*, XIII.

<sup>270</sup> Thomas Aquinas, *Summa Theologica* II-II:95: ad. 8, trans. Fathers of Dominican Province, p. 211.

<sup>271</sup> Aquinas, *Summa Theologica* II-II:95 ad. 1, trans. Fathers of Dominican Province, p. 192.

Pythagorean table; the observation as well of every incident that may have significance for the matter under investigation.<sup>272</sup>

Boudet points out that John is more than likely referring to a totally separate divinatory tract here entitled the *Prenostica Pictagore*, in which the operator draws lots and refers to birds in the margins of the text to get the answers to up to 36 different questions.<sup>273</sup> This device is present in Oxford, Bodleian Library MS Digby 46 at ff. 52r-62r, which also contains multiple 'Spheres' on ff. 107r-v (figures 26:a-b).<sup>274</sup> John was probably referring to the *Prenostica Pictagore*, considering the link in the text to the drawing of lots, and the sheer breadth of subjects covered by it would make it a more suitable tool for a fortune-teller than a 'Sphere'. Veenstra, however, perhaps unaware of any other form of divination associated with Pythagoras, believed that John's statement refers to the 'Sphere'.<sup>275</sup> Whichever text John may be referring to here, it is still possible that the vagueness of his *tabulae quae Pitagorica appellantur* led to different interpretations on the part of the medieval reader as to which text he was describing, and helped maintain the ambiguity of the standing of the 'Sphere' in Christian teaching.

Despite the dearth of references to a category of 'onomancy' or the 'Sphere' specifically in these patristic and theological works, there is a definite condemnation of the 'Sphere' in canon law. Gratian's *Concordantia discordantium canonum* (or *Decretum Gratiani*) was compiled at Bologna in two recensions between 1139 and, at the latest, 1158.<sup>276</sup> This was the first attempt to bring together all the past decretals of popes and other authorities on ecclesiastical law. From the 1190s at the latest, the decretals were lectured on at the law schools, and became even more well-known from this time onwards.<sup>277</sup> In a section condemning those who observe the Egyptian Days, auguries and prognostication by dreams (discussed in chapter 1), amongst other superstitious practices, the *Decretum* states, '[They must not] by certain numerical values of letters, and of the moon, inquire into the life or death of the sick, or future prosperity or adversity, by Pythagorean necromancy'.<sup>278</sup> Unlike

<sup>272</sup> John of Salisbury, *Policraticus* trans. Pike, p. 43.

<sup>273</sup> Boudet, *Entre Science et nigromance*, p. 95.

<sup>274</sup> Oxford, Bodleian Library MS Digby 46, ff. 52r-62r; 107r-v.

<sup>275</sup> Veenstra, *Magic and Divination*, p. 157.

<sup>276</sup> On this dating of the *Decretum* see Anders Winroth, *The Making of Gratian's Decretum* (Cambridge: Cambridge University Press, 2000), pp. 122-144.

<sup>277</sup> Stephan Kuttner, 'The Scientific Investigation of Mediaeval Canon Law: The Need and the Opportunity', *Speculum* 24 (1949), pp. 493-497.

<sup>278</sup> '... sive per quosdam numeros litterarum, et lunae, per Pitagoricam nigromantiam egrotantium vitam vel mortem, vel prospera vel adversa futura inquirunt ...'. Gratian,

the vague 'Pythagorean tables' in John of Salisbury, this is a definite condemnation of the 'Sphere'.

The association of the 'Sphere' with necromancy in the *Decretum* provides a clue as to the date of the composition of this condemnation. In its original, ancient Greek meaning, this word literally meant 'divination by the dead' (*nekros* = 'dead' and *manteia* = 'divination'), and Isidore of Seville had, in the seventh century, given it its original definition in his *Etymologiae*. By the later Middle Ages, it had come to mean something quite different. 'Necro' had become confused with 'nigro' – coming from 'niger', the Latin for black. 'Nigromantia' became the translation for the Arabic word for magic (*sihr*), and so 'necromantia' or 'nigromantia' was often used in a vague sense to define illicit magical practices. The earliest surviving attestation of this new meaning is in Peter the Deacon's (c. 1107 – c. 1153) biography of Constantine the African (c. 1020 – c. 1099), the translator of Arabic medical texts into Latin.<sup>279</sup> The use of the word *nigromantia* in Gratian is the later definition, as in this case it seems to be describing a general sort of impermissible magic. Thus, it can safely be said that this condemnation was probably not written before the start of the twelfth century, and may even have been written in Gratian's own time.

After Gratian, many theologians and canon lawyers composed commentaries on the *Decretum*, expanding on or explaining whatever they saw fit. An examination of the most widely used commentaries which circulated in England has shown that, while many chose to comment on the passages relating to superstitious practices (often at length), none chose to expand on the passage relating to the 'Sphere' specifically. As with the lack of reference to the 'Sphere' from the standardised list in theological condemnations, however, it is important not to read too much into this absence. These commentators clearly felt that this section needed no further elaboration or explanation: it was clear as it stood.

One of the most significant ways that canon law reached the laity was via the parish priest and confession. Given that the average village priest would probably not have studied canon law at university, it was important that he was able to work out what

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*Decretum* C. 26 q. 7. c. 16, in *Corpus Iuris Canonici* ed. Aemilius Friedberg, vol. I (Graz: Akademische Druck –U. Verlagsanstalt, 1950), p. 1045.

<sup>279</sup> Charles Burnett, 'Talismans: Magic as Science? Necromancy among the Seven Liberal Arts', an unpublished talk given to the London Medieval Society in 1994 and at a conference in memory of Donald Hill in 1995, pp. 1-3. Reprinted in Burnett, *Magic and Divination*, I.

constituted sinful behaviour when his flock came to him for confession. For this purpose, from the early thirteenth century onwards, a range of confessors' manuals were composed by a variety of ecclesiastics, many of which were produced in England.<sup>280</sup> A number of these manuals enjoyed wide circulation, most notably the so-called *Summa confessorum* of Thomas of Chobham (c. 1160 - c. 1236). That this was an extremely popular manual is not in doubt, as it survives in over 100 manuscripts.<sup>281</sup> In the *Summa*, Thomas copies the passage condemning the 'Sphere' from Gratian word-for-word. In terms of the penance to be meted out for the use of a 'Sphere', the text is ambiguous. Several penances are listed at the end of the section for divination and/or *sortilege*, none of which includes a reference to the 'Sphere'. Some prescribe up to seven years' penance for such crimes

Qui auguriis vel divinationibus inserviunt vel qui credunt, vel si qui hominum sunt immissores tempestatum, vel si qua mulier divinationes vel incantationes diabolicas fecerit, septem annos peniteant.<sup>282</sup>

Others require just forty days:

Si in tabulis et codicibus sorte futura non sunt inquirenda, et nullus in psalterio vel evangelio vel in aliis rebus sortiri presumat, nec divinationes aliquas in aliquibus rebus observare, quod si fecerit, quadraginta dies peniteat.<sup>283</sup>

It is not known how these manuals were used in practice, whether the priest would carry his manual around with him or not, and whether it was intended to be just a rough guide. Either way, it is easy to see how a priest might ascribe any number of penances that are listed, as many of the descriptions of the practices could encompass a 'Sphere': it could be included in the *divinationes* to which seven years' penance was enjoined; or inquiring into the future using the *tabulae* or *codices* for which forty days' penance was needed. So while Thomas of Chobham leaves no doubt that the 'Sphere' is an illicit device, his manual does not make it clear at all how serious a crime it was. This ambiguity, however, is not reserved for the 'Sphere'

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<sup>280</sup> On condemnations of superstition in pastoral literature and sermons in late medieval England see Catherine Rider, *Magic and Religion*, especially pp. 129-169; and Kathleen Kamberick, 'Shaping Superstition in Late Medieval England', *Magic, Ritual, and Witchcraft* 3:1 (2008), pp. 29-53. On confession in the Middle Ages more generally, see *Handling Sin: Confession in the Middle Ages* ed. Peter Biller and A. J. Minnis (York: York Medieval Press, 1998).

<sup>281</sup> Catherine Rider, 'Medical Magic and the Church in Thirteenth-Century England', *Social History of Medicine* 24:1 (2011), p. 94.

<sup>282</sup> Thomas of Chobham, *Summa Confessorum* VII.5.XIa ed. F. Broomfield (Louvain and Paris: Nauwelaerts, 1968), p. 485.

<sup>283</sup> Thomas of Chobham, *Summa Confessorum* VII.5.XIa ed. Broomfield, p. 486.

alone, as the penances to be given most sins are unclear: possibly to give the priest discretion depending on the individual who had sinned.

The next reference to the 'Sphere' in a penitential work was composed around the turn of the fifteenth century, when John Mirfield copied the same sanctions against the 'Sphere' found in Gratian into his *Florarium Bartholomei*. The *Florarium* was a huge encyclopedia on the maintenance of spiritual health.<sup>284</sup> What makes the inclusion in Mirfield's work especially significant is that as well as being the chaplain of St. Bartholomew's Hospital in London, he wrote on a range of medical matters. Another of his works, the *Breviarium Bartholomei*, contains a much-simplified version of a 'Sphere' (discussed in chapter 1).<sup>285</sup> This could be a demonstration of the ambiguous nature of the 'Sphere'. On the one hand, Mirfield saw this device as illicit divination, but on the other, he considered a more simplified version to be a useful medical prognostic. However, Mirfield could equally have copied the passage from Gratian, or the onomantic treatise, verbatim without giving too much thought to the contents of either or both.

Shortly after Mirfield wrote his *Florarium*, the anonymous Middle English prose treatise *Dives and Pauper*, composed between about 1405 and 1410, included a translation of the same passage from Gratian. Written in the form of a dialogue between a rich man and a poor man by an anonymous author, this work explains the meaning of the Ten Commandments. It is not known if *Dives and Pauper* had a patron, or who was the intended audience. The use of the vernacular is not uncommon for the time in which the piece was written, but it certainly indicates a potentially wide readership. Under the First Commandment, chapter 34 gives a lengthy list of condemned superstitious practices, including 'dyvynyn of mannys lyf or deth be numbrys and be þe sper of Pittagoras'.<sup>286</sup> Unlike the vague 'Pythagorean necromancy' of Gratian, this author, or the work he was copying or translating from, knew of the 'Sphere of Pythagoras' and named it. *Dives and Pauper* goes on to give the penance required for all the superstitious activities it lists in this section. Like Thomas of Chobham, *Dives and Pauper* gives several different penances for superstitious practices, none of which makes clear what punishment is for which crime. The first is excommunication from the bishopric:

<sup>284</sup> London, British Library MS Royal 7 F XI, f. 227r. I owe this reference to Catherine Rider.

<sup>285</sup> John of Mirfield, *Breviarium Bartholomei*, ed. and trans. Horton-Smith Hartley and Aldridge, p. 70.

<sup>286</sup> Anonymous, *Dives and Pauper* ed. Priscilla Heath Barnum (Oxford: Oxford University Press, 1976), p. 157.

And þerfor þe lawe comandyth þat byschopis schuldyn be besy to destryyne al maner wycheecraftis, and ȝif þei foundyn ony man or woman þat ȝeue hem to wycheecraftis, but [þey] wolden amendyn hem, he schuldyn cachyn hem out of here byschopryche with opyn despyt.<sup>287</sup>

While this passages mentions witchcraft, it is likely that this was a general catch-all term for superstition, rather than something more specific. The second possible punishment is five years' penance, '... and be þe lawe of holy chirche, alle þat leuyn in hem or menteþyn hem schuldyn don fyue ȝer of penaunce'.<sup>288</sup> Like Thomas of Chobham's manual, *Dives and Pauper* leaves the reader unsure of the punishment enjoined for using a 'Sphere'.

The condemnation of the 'Sphere' continued in the fifteenth century. Alexander Carpenter (fl. 1429), also known as Fabritius, composed his vast preaching aid based around the Seven Vices and Virtues, entitled *Destructorium viciarum*. Carpenter was possibly writing at Oxford, and the tone of this work has led several historians to conclude that he was a follower of John Wycliffe (d. 1384), the religious reformer, posthumously declared a heretic.<sup>289</sup> Part VI, chapter LV, contains the condemnation from Gratian copied almost verbatim, but with a subtle difference:

...sive per quosdam numeros litterarum et lune sive per pytagoricam nigromantiam egrotantium vitam vel mortem vel prospera vel adversa future inquirere...<sup>290</sup>

Carpenter here almost identifies two categories of illicit practice by adding a 'sive' after 'lune': firstly, it is impermissible to carry out divination by certain numbers of letters and of the moon; and secondly to indulge in 'Pythagorean necromancy'. However, whether or not this was intentional, on the part of Carpenter or a later copyist or printer, is not known.

<sup>287</sup> *Dives and Pauper* ed. Barnum, p. 157.

<sup>288</sup> *Dives and Pauper* ed. Barnum, p. 159.

<sup>289</sup> On this treatise, and Carpenter's possible links with Wycliffe and the Lollards, see G. R. Owst, *The Destructorium Viciarum of Alexander Carpenter: A Fifteenth-Century Sequel to Literature and the Pulpit in Medieval England: being an expansion of a lecture delivered in the University of Durham on 2 March 1951* (London: Society for Promoting Christian Knowledge, 1952).

<sup>290</sup> Alexander Carpenter, *Destructorium Viciarum* VI:55 (Cologne: 1480), not paginated.

## Prosecution

Using the 'Sphere', then, was a crime in the eyes of the Church throughout the Middle Ages, and not just at the highest level of canon law. The censure of its use was diffused to the local priest via Thomas of Chobham's very popular manual, John Mirfield's encyclopedia of spiritual health, Alexander Carpenter's moral treatise and even further to a lay readership in *Dives and Pauper*. But was anyone actually prosecuted for using such a device? If so, what sort of punishment did the perpetrator receive? The simple answer is that it is very difficult to know for sure. Two main types of sources have been examined. The first is episcopal registers, which record the outgoing documents and decrees of archbishops and bishops, along with visitation records. While one-sided, they nevertheless offer a glimpse of matters that were dealt with on a day-to-day basis by the highest-ranking churchmen of the time, and give an indication of the kinds of crimes being carried out, and the punishment meted out for each one. The second set of sources combed for information on prosecutions was the rare extant court records available pre-1500. All of these legal records date from the fifteenth century with one or two exceptions from the fourteenth.

A search of all published episcopal registers and court records failed to produce any examples of a person being censured, tried or punished for using a 'Sphere' in late medieval England. Superstitious practices as a whole are very rarely mentioned in either kind of record, and when they are, it is rare for the record to give any information about the nature of the practice. The terminology used is often vague. Words such as *sortilege* and *superstitione* are often used generally in these kinds of record. One exception is the very detailed account of the contents of two 'magic books' and descriptions of various other occult items possessed by Richard Walker, chaplain of Worcester, tried on 17 November 1419 by Henry Chichele, Archbishop of Canterbury (1414 – 1443). The books contained conjurations, a magic figure and various *sortilegia*. Richard also had a box with a piece of beryl suspended in a black skin, three small pieces of paper and two small images in yellow wax.<sup>291</sup>

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<sup>291</sup> '...duos libros in quibus scripte et depicte fuerunt nonnullae conjurationes et figure artem magicam ut dicebatur et sortilegium sapientes ac etiam unam pixidem in qua contenti erant unus lapis de birillo artificiabiliter in coreo nigro suspensus, tres parve cedule et due parve ymagines de cera croce...'. *The Register of Henry Chichele, Archbishop of Canterbury 1414-34* ed. E. F. Jacob, vol. III (Oxford: Oxford University Press, 1945), p. 54.

To try and work out the likely punishment of a person tried and convicted for using a 'Sphere' in late medieval England, then, the sentences pronounced for indulging in similar activities can be useful. Those for practising other methods of divination are one point of comparison point. Court records from late medieval Canterbury note that in 1469 a Gilbert de Leche (whose surname indicates that he or perhaps his father may have been a medical practitioner) appeared before the church court at Canterbury, accused of practising chiromancy. The only punishment that Gilbert received was an order to discontinue the practice.<sup>292</sup> Therefore, a man convicted of divination, perhaps for medical purposes, was treated very leniently compared to the prescriptions given in pastoral works.

Gilbert de Leche may have had benevolent aims in practising divination; but it seems that even indulging in occult practices with clearly malevolent goals escaped harsh punishment. The register of John de Stratford, Archbishop of Canterbury (1333 - 1348) gives an example of a man convicted of necromancy with the aim of murder:

Lately one Robert de la Marche of Canterbury, who at Southwark in or near a circle, created it is said for the summoning up of evil spirits, was taken by the king's ministers and later committed to prison and there detained for certain confessions before the justices and other magnates of the king's council. At length by the king's order he was released for judgement and punishment in the ecclesiastical forum to the bishop of Winchester, in whose diocese he had been apprehended, together with certain books, containing illicit teachings and instructions contrary to the catholic faith, as well as various images made in the likeness of men and other materials pertaining to the magic art and the crime of witchcraft. The bishop, proceeding lawfully in the matter, found from spontaneous confessions, judicially obtained, that the said Robert had certain plates designed to create images of men in wax or some other suitable material. These and the books found in his possession he lent to someone who wished by them and this illegal art to kill Robert de Ely of London. With them he could make these images in a house in London where he was then living, so that by such means the said Robert of Ely could be killed. For that purpose Robert de Canterbury wrote the name of Robert de Ely with his own hand in a certain schedule and with his accomplice went to the said circle.<sup>293</sup>

Robert's punishment was to be led from where he was being held, at the hospital of St. Thomas the Martyr in Southwark, to the cross of Chepe in London, barefoot and wearing only a belt and shirt or tunic. He was to disavow all the 'illicit arts' and his

<sup>292</sup> Karen Jones and Michael Zell, 'The divels speciall instruments': Women and Witchcraft before the 'great witch-hunt', *Social History* 30:1 (2005), p. 54.

<sup>293</sup> *The Register of John de Stratford, Bishop of Winchester 1323-33* trans. Roy Martin Haines, vol. I (Woking: Surrey Record Society, 2010) p. 223.



books relating to them were to be burned in front of him. He was then to be taken back to Southwark and be given suitable penance.<sup>294</sup> Thus, it seems that even people who carried out occult practices with the intention of murder got off with an extremely light sentence, given the severity of the crime.

### Conclusion

Despite the censures of divination in general, and the 'Sphere' specifically, this device continued to be copied into more and more manuscripts as the Middle Ages progressed. The legal aspect of the 'Sphere' might have been slightly clouded by Augustine and Aquinas's assertion that some divination could be licit in particular situations, and Aquinas's additional explanation that the prognosis of physicians stood quite apart from occult divination. In theory, it was a crime to use the 'Sphere'. The paucity of evidence of prosecutions for magic and divination in the later Middle Ages, however, means that the likely punishment for using one can only be reconstructed by looking at the sentences pronounced for indulging in similar crimes in sparse pre-1500 court records. From this evidence, it seems likely that a person caught using such a device would not have been severely punished. Despite the censures that circulated against divination in late medieval England, a great variety of literate people copied and owned books containing the 'Sphere'. This variety of owners is the subject of the next three chapters.

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<sup>294</sup> *Register of John de Stratford* ed. Haines, vol. I, p. 223.

## Chapter 6

### The 'Sphere' in manuscripts for the medical practitioner

#### Introduction

In the mid-1960s, writer John Berger and photographer Jean Mohr profiled John Sassall, general practitioner in the Forest of Dean, photographing and documenting his everyday practice. This passage describes the difficulty of providing an accurate medical prognosis to a terminally ill patient:

Patients, when their illness has been given a name, usually ask next: And how long will it take? How long will it be before ... ? How long? And the doctor replies that he cannot promise, but ... He can appear to be the controller of time, as, on occasions, the mariner appears to rule the sea. But both doctor and mariner know this to be an illusion.<sup>295</sup>

Even with the advent of modern medicine, then, medical prognosis is at best an inexact science. It should therefore not be surprising that centuries earlier, before the advent of efficacious biomedical techniques, the prediction of death was almost impossible to make with any certainty.

Despite the difficulties surrounding accurate prediction, medical prognosis was a major branch of medieval medicine, and was one of the physician's main tools in a medical culture where treatment was often ineffective, surgery a dangerous last resort and diagnosis difficult.<sup>296</sup> With the rise of university medicine and the emergence of the educated physician in the thirteenth and fourteenth centuries, learned medicine became a commercial enterprise, and a physician's ability to prognosticate successfully demonstrated his skill and secured his status.<sup>297</sup> It was especially important to be able to predict impending death, and not only so that a priest could be summoned to perform the last rites. By successfully prognosticating a patient's demise, a physician could distance himself from the case with his reputation intact.<sup>298</sup>

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<sup>295</sup> John Berger and Jean Mohr, *A Fortunate Man: The Story of a Country Doctor* (London: Penguin, 1967), p. 126.

<sup>296</sup> Luke Demaitre, 'Art and Science', p. 766.

<sup>297</sup> Roger French, 'Astrology in Medical Practice', p. 32.

<sup>298</sup> Michael R. McVaugh, *Medicine before the Plague: Practitioners and their Patients in the Crown of Aragon, 1285-1345* (Cambridge: Cambridge University Press, 1993), pp. 143-144.

As discussed in the Introduction, considering the importance of accurate prognosis in late medieval medicine, and the overwhelming number of extant English manuscripts containing medical prognostics, the lack of scholarly attention that the genre as a whole has received is somewhat puzzling. Aside from Demaitre's article on medical prognosis in early university medicine,<sup>299</sup> Laurence Moulinier has written an impressive number of works on uroscopy (although not concentrating specifically on its use as a prognostic tool),<sup>300</sup> and Wallis has produced an article focusing on diagnosis and prognosis in pulse and urine texts. Wallis's article, however, concerns tracts that circulated c. 1000, which falls outside the timescale of the present study, and before the rise of university medicine in the twelfth and thirteenth centuries.<sup>301</sup> In terms of astrological prognosis, both Carey and Roger French have authored several important articles,<sup>302</sup> and astrology is usually referred to in general studies of medieval medicine. However, no scholar as yet has comprehensively brought together and discussed all the ways in which the learned physician might carry out prognosis in the later Middle Ages.

This scholarly neglect is even more confounding given the rich array of medical prognostics that survive, often in hundreds of manuscripts, from the later Middle Ages. These include methods of prognostication used by the university-trained practitioner, such as the Hippocratic-Galenic 'signs of death' in the body, the analysis of the urine and pulse, the drawing up of astrological predictions, and sophisticated divinatory practices like chiromancy and geomancy. At the other end of the scale, prognostics for so-called 'empiric' practitioners: that is, those working on experience alone. These kinds of prognostic include what we might loosely term 'popular' experiments, lunaries and simplified learned medicine such as uroscopy diagrams. No doubt there existed a variety of prognostics that do not survive because they were not literary, and so the prognostics that are available for study in

<sup>299</sup> Demaitre, 'Art and Science', pp. 765-788.

<sup>300</sup> Laurence Moulinier, 'La science des urines de Maurus de Salèrne et les *Sinthomata Magistri Mauri* inédits', in *La Scuola Medica Salernitana. Gli autori e i testi, convegno internazionale, Università degli Studi di Salerno, 3-5 novembre 2004* (Florence: SISMEL, 2007), pp. 261-282; Laurence Moulinier-Brogi, 'L'uroscopie en vulgaire dans l'Occident médiéval: un tour d'horizon', in *Science Translated: Latin and Vernacular Translations of Scientific Treatises in Medieval Europe* ed. Michèle Goyens, Pieter de Leemans, and An Smets (Leuven: Leuven University Press, 2008), pp. 221-241; and Laurence Moulinier-Brogi, 'Un façon en point de mire: La science des urines, un enjeu culturel dans la société médiévale (XIIIe-XVe siècles)', *Annales HSS* 65:1 (2010), pp. 9-38.

<sup>301</sup> Wallis, 'Signs and Senses', pp. 265-278.

<sup>302</sup> For example, Hilary M. Carey, 'Medieval Latin Astrology and the Cycles of Life: William English and English Medicine in Cambridge, Trinity College MS O.5.26', in *Astro-Medicine* ed. Akasoy et al, pp. 33-74; French, 'Astrology in Medical Practice'.

the present day are by nature only those that were used by literate people in the Middle Ages. On first glance, it might seem that the 'Sphere' was not a learned method of prognosis that the educated practitioner would have used; it was, after all unorthodox in the eyes of the Church (see chapter 5). But manuscript context tells a different story. The 'Sphere' is found in the same hand as orthodox medical texts and prognostic devices in a range of manuscripts from late medieval England, in some cases fully incorporated into well-known tracts of learned medicine. This chapter will outline the most common learned prognostic techniques used by the late medieval English physician, and demonstrate that the 'Sphere' was of interest to him by analysing the manuscript context of several 'Spheres' in the corpus. It will then go on to explain why the 'Sphere' might have appealed to such practitioners, and thus ensured its survival in so many English manuscripts written in the time period of the present study.

#### Medical prognosis and the university-educated physician

The most noted medieval school dedicated to the teaching of medicine was founded at Salerno, perhaps as early as the tenth century, but certainly established by the twelfth.<sup>303</sup> Montpellier's medical faculty was active by the mid-twelfth century as attested by John of Salisbury in his *Metalogicon* (1159), which makes reference to Cornifican scholars departing for Salerno and Montpellier to train in medicine.<sup>304</sup> Paris, too, had an expanding medical school in the later twelfth century, as evidenced by eleven chapters in Alexander Nequam's (1157-1217) *Sacerdos ad altare*, written around the 1180s. These chapters discuss student life, and the set texts for each discipline at the university, including medicine.<sup>305</sup> Bologna's medical

<sup>303</sup> Paul Oskar Kristeller, 'The School of Salerno: Its Development and its Contribution to the History of Learning', *Bulletin of the History of Medicine* 17 (1945), pp. 138-194. On medical education at Salerno see also Danielle Jacquart, 'Médecine et philosophie naturelle a Salèrne au XIIe siècle', in *Salerno nel XII secolo: Istituzioni, società, cultura. Atti del convegno internazionale, Raitto do Vietri sur Mare, Auditorium de Villa Gueriglia, 16-20 giugno 1999* ed. Paolo Delogu and Paolo Reduto (Provincia di Salerno: Centro Studi salernitani "Raffaele Guariglia", 2004), pp. 399-407.

<sup>304</sup> 'Alii autem suum in philosophia intuentes defectum, Salernum uel ad Monte Pessulanum profecti, facti sunt clientuli medicorum, et repente quales fuerant philosophi, tales in momento medici eruperunt'. John of Salisbury, *Metalogicon* I.4 ed. J. B. Hall and K. S. B. Keats-Rohan (Turnhout: Brepols, 1991), p. 18. See also Luke Demaitre, 'Theory and Practice in Medical Education at the University of Montpellier in the Thirteenth and Fourteenth Centuries', *Journal of the History of Medicine and Allied Sciences* 30:2 (1975), pp.103-123;

<sup>305</sup> Cornelius O'Boyle, *The Art of Medicine: Medical Teaching at the University of Paris, 1250-1400* (Leiden: Brill, 1998), pp. 12-13. See also Mireille Ausécache, 'Gilles de Corbeil ou le médecin pédagogue au tournant des XIIe et XIIIe siècles', *Early Science and Medicine* 3:3 (1998) pp. 187-215.

faculty, too, was established by at least the thirteenth century.<sup>306</sup> A medical faculty was finally founded in England at the start of the fourteenth century at Oxford.<sup>307</sup> This is not to say that there were no learned doctors in England before this time, because anyone wishing to learn medicine could travel abroad to do so. The fairly frequent suffix of 'Anglicus' to a scholar's name indicates that he studied abroad, for example Bartholomaeus Anglicus (c. 1203 – 1272), who compiled an influential encyclopedia on natural philosophy, *De natura rerum*;<sup>308</sup> Gilbertus Anglicus, a thirteenth-century medical writer (discussed in chapter 4);<sup>309</sup> and Guillelmus Anglicus, a scholar resident in France who wrote an influential treatise on medical astrology in 1219.<sup>310</sup>

The principal text for the teaching of medicine in the medieval university, the *Articella*, was based around five main components. The most important of these components were the Hippocratic *Aphorisms* and *Prognosis*, and Johannitus's *Isagoge*. Theophilus's *Urines* and Philaretus's *Pulses* completed the core of the collection, and later, Galen's *Tegni* was added.<sup>311</sup> Many of the *Aphorisms* were prognostic in nature, and *Prognosis* itself is an exhaustive catalogue of signs of life and death during the course of an acute disease, for example:

First study the patient's *facies*; whether it has a healthy look and in particular whether it be exactly as it normally is. If the patient's normal appearance is preserved, this is best; just as the more abnormal it is, the worse it is. The latter appearance may be described thus: the nose sharp, the eyes sunken, the temples fallen in, the ears cold and drawn in and their lobes distorted, the skin of the face hard, stretched and dry, and the colour of the face pale or dusky.<sup>312</sup>

From the second half of the thirteenth century, Galen's *On Critical Days* and *On Crisis*, which were based on the philosophy that every acute disease had 'crisis days' on the seventh, fourteenth, and twentieth days, also entered the university

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<sup>306</sup> Jole Agrimi and Chiara Crisciani, 'The Science and Practice of Medicine in the thirteenth century according to Guiglielmo de Saliceto, Surgeon', in *Practical Medicine* ed. García-Ballester et al. pp. 61-87.

<sup>307</sup> See F. M. Getz, 'The Faculty of Medicine before 1500', in *The History of the University of Oxford* ed. J. I. Catto and T. A. R. Evans, vol. II (Oxford: Clarendon, 1992), pp. 373-405.

<sup>308</sup> On Bartholomaeus Anglicus see Michael C. Seymour, *Bartholomaeus Anglicus and his Encyclopedia* (Brookfield, VT: Ashgate Publishing Company, 1992).

<sup>309</sup> On Gilbertus Anglicus see Michael McVaugh, 'Who Was Gilbert the Englishman?', in *The Study of Medieval Manuscripts of England: Festschrift in Honor of Richard W. Pfaff* ed. George Hardin Brown and Linda Ehrsam Voigts (Tempe, AZ: ACMRS, 2010), pp. 295-324.

<sup>310</sup> On Guillelmus Anglicus see Carey, 'Medieval Latin Astrology'.

<sup>311</sup> On the contents of the *Articella* and its development, see O'Boyle, *Art of Medicine*.

<sup>312</sup> Hippocrates, *Hippocratic Writings* ed. and trans. John Chadwick (London: Penguin, 1983), pp. 170-171.

curriculum, and gradually overtook *Prognosis* as the favoured text in the *Articella*.<sup>313</sup> Prognosticating the fate of a patient with an acute disease on the first critical day, *De crisisibus* states that the doctor needs to observe the patient closely to make a prognosis.<sup>314</sup>

Essentially, Hippocratic-Galenic prognostic techniques involved a great deal of observation and training on the part of the doctor. Furthermore, the physician needed good knowledge of his patient's usual appearance, and was therefore required to have known them for some time.

As well as looking for signs in the body and counting the days of illness, a physician might prognosticate life or death by sphygmology, the examination of the pulse. An anonymous thirteenth-century tract entitled *Summa pulsuum* aimed to provide an overview of Galenic pulse theory in a format suitable for university education.<sup>315</sup> After a long section expounding the rationale of pulse analysis, it includes a section, 'On Foretelling Life and Death from the Pulse'. The hour of death can be predicted by a failing pulse on a critical day and the hour of convalescence from a rising pulse. To predict death, the practitioner must take two pulse readings between the time of the first pulse failing and the second, and the next day do the same. If the first reading is thirty beats at the third hour of the day and the second fifteen at the same hour, then when the same amount of time has passed again, the patient will die. The hour of convalescence is predicted in entirely the same way.<sup>316</sup> The technique for life and death prognostication by pulses set out in the *Summa pulsuum* was clearly not an 'exact science', and furthermore, the procedure took days to carry out. Therefore the patient could be dead by the time a prediction was actually reached.

As suggested by the contents of the *Articella*, uroscopy went hand in hand with sphygmology, and another method used by learned physicians to prognosticate the outcome of disease was the examination of urine. The most common image in

<sup>313</sup> Demaitre, 'Art and Science', p. 773.

<sup>314</sup> '... si enim aegrotante crism passio febris soluat, atque aliis accidentibus liberetur, et melius fuerit coloratus pro ratione evacuationis, cum melioribus pulsibus, et ad surgendum robore, hec optima crisis est. Si vero aliquid ex his desit, tantum ab optima deficit, quanta est eius quod deficit vis'. Galen, *De crisisibus*, book III (Paris: ex officina Henrici Stephani, 1514), not paginated.

<sup>315</sup> *Medieval Medicine* ed. Wallis, p. 258.

<sup>316</sup> Anonymous, 'Summa Pulsuum', trans. Michael R. McVaugh, in *A Source Book in Medieval Science* ed. Edward Grant (Cambridge: Harvard University Press, 1974), pp. 747-748.

medieval manuscripts of the learned physician show him holding a urine-flask, for example that in the 'Ellesmere Chaucer'. This is San Marino, Ca., Huntington Library MS EL 26 C 9, f. 133r.<sup>317</sup> This depicts, next to the text, a learned physician holding up a flask of urine while on horseback. This depiction is a good reminder that uroscopy was an activity that could be carried out in the patient's absence, making it even more useful than the examination of the patient in person, since learned physicians were few and far between and a messenger could be sent to the doctor with the urine flask.<sup>318</sup> The tract by Theophilus on urines incorporated into the *Articella*, however, was a theoretical work designed for university teaching, and therefore it is mostly diagnostic, with very little of use to the practising physician, including prognosis.<sup>319</sup>

However, the examination of urine was often used for predicting the life or death of a sick person. John of Cella (d. 1214), Abbot of St. Albans and physician, on falling sick, was said to have predicted that his own death would occur in three days by examining his own urine.<sup>320</sup> Additionally, there were several late medieval urine tracts which gave prognostic advice, one of the most significant being the poem *De urinarum iudiciis* by the French royal physician and teacher Gilles de Corbeil (b. c. 1140). This work was added to the *Articella* from the thirteenth century onwards.<sup>321</sup> Furthermore it appears, either in full or in part, in several late medieval English medical manuscripts, including the well-known commonplace book of the physician Thomas Fayreford (fl. 1400 – 1450), now London, British Library MS Harley 2558, ff. 152r-160v.<sup>322</sup> A partial earlier Latin version with a commentary appears in the thirteenth-century London, Wellcome Library MS 536 ff. 3r-4r, and a Middle English

<sup>317</sup> San Marino CA, Huntington Library MS EL 26 C 9, f. 133r.

<sup>318</sup> A famous early medieval example of prognosis by urine *in absentia* is that of Notker, the ninth-century monk of St. Gall, who was famed for his prognostic ability. To test him, the Duke of Bavaria sent him a flask of urine purporting to be his own, but which was actually that of a servant girl. Notker predicted that in thirty days, the duke would give birth – which the servant girl did. Ekkehard IV, *Casus Sancti Galli: St. Galler Kloster geschichten* ed. and trans H. F. Haefele (Darmstadt: Wissenschaftliche Buchgesellschaft, 1980), pp. 238-240.

<sup>319</sup> Faith Wallis, 'Inventing Diagnosis: Theophilus' *De urinis* in the Classroom', *DYNAMIS. Acta Hisp. Med. Sci. Hist. Illus.* 20 (2000), p. 41.

<sup>320</sup> Thomas Walsingham, *Gesta Abbatum Monasterii Sancti Albani* ed. Henry Thomas Riley vol. I, A.D. 793 – 1290 [Rolls Series 28, vol. I, pt. 4] (London: Longman, 1867), p. 246. Noted in C. H. Talbot and E. A. Hammond, *The Medical Practitioners in Medieval England: A Biographical Register* (London: Wellcome Historical Medical Library, 1965), p. 131.

<sup>321</sup> O'Boyle, *The Art of Medicine*, p. 112.

<sup>322</sup> On Fayreford and his commonplace book see Peter Murray Jones, 'Harley MS 2558: A Fifteenth-Century Medical Commonplace Book', in *Manuscript Sources of Medieval Medicine* ed. Schleissner, pp. 35-54; and Peter Murray Jones, 'Thomas Fayreford: An English Fifteenth-Century Medical Practitioner', in *Medicine from the Black Death to the French Disease*, ed. Roger French, Jon Arrizabalaga, Andrew Cunningham and Luis García-Ballester (Aldershot: Ashgate, 1998), pp. 156-183.

translation is found in London Wellcome Library MS 7 ff. 1r-6v.<sup>323</sup> Its use by Fayreford, a physician who treated a variety of patients living across an area of three English counties in the south-west, the addition of a commentary, and its translation into the vernacular, suggests that this tract was widely used and respected in late medieval England. Interspersed with diagnostic information is advice on prognosis, including the prediction of life or death:

A large quantity of urine, darkened throughout by a black cloudiness, and muddied with sediment, if produced on a critical day and accompanied by poor hearing and insomnia, portends a flux of blood from the nose; depending on whether the other signs are ominous or favourable, the patient will die or recover ...<sup>324</sup>

Uroscopy, then, was a useful prognostic tool for the late medieval physician, but, like sphygmology, it depended on the education and skill of the practitioner, and was open to interpretation.

Despite the urine flask's iconic status and the undeniable popularity of uroscopy, as the Middle Ages drew to a close, prognosis by urine began to be eclipsed by astrology as the learned doctor's main method of predicting the outcome of a disease. Uroscopy gradually became the practice of popular practitioners such as apothecaries in the early modern period.<sup>325</sup> One popular astrological tract which dealt exclusively with medical matters was the *Astronomia Ypocratis*, a text of Byzantine origin, which gave instructions for predicting the imminence of death according to the phases of moon and twelve signs of the zodiac. It explains that Mars and Saturn are maleficent planets, and their position in regard to the moon is critical. If the moon, Saturn, and Mars are in Aries at the same time, the patient will die within seven days.<sup>326</sup>

However, as evidenced by surviving manuscripts, one of the most common astrological methods to get information about an individual's life was to draw up a nativity, or horoscope. The horoscope-caster analysed the position of the sun, moon, and planets at the time of the client's birth and made calculations. But as well as being of benefit to the learned doctor, the drawing up of horoscopes could be extremely dangerous, as demonstrated by the case brought against the Oxford

<sup>323</sup> London, Wellcome Library MS 536, ff. 3r-4r; London, Wellcome Library MS 7, ff. 1r-6v.

<sup>324</sup> Gilles de Corbeil, *De urinarum judiciis* trans. Michael R. McVaugh, in *Source Book in Medieval Science* ed. Grant, pp. 748-750.

<sup>325</sup> Moulinier-Brogi, 'Un façon en point de mire', p. 12.

<sup>326</sup> French, 'Astrology in Medical Practice', p. 42.



scholars Thomas Southwell and Roger Bolingbroke, and Eleanor Cobham (c. 1400 – 1452), Duchess of Gloucester in 1441 by Henry VI (1422 – 1461 and 1470 – 1471). They were accused of plotting the king's death by necromancy, and while astrology was not directly implicated, surviving evidence shows that Southwell and Bolingbroke had drawn up a horoscope which predicted the imminent death of the king. Bolingbroke's work on astrology, when talking about the first mundane house, makes the point that if there is a question about a sick person and the lord of the first house is in the eighth house, then the patient will die. Both Bolingbroke and Southwell were convicted and sentenced to death, and the king, shaken by the prediction that he would soon die, immediately ordered another nativity to be drawn up, possibly by Lewis of Caerleon (d. 1495), which was delivered to him in August 1441. Naturally, this reading gave a much happier prediction of Henry's life expectancy.<sup>327</sup> Bolingbroke and Southwell were practising, if not at least accused of, using illicit judicial astrology to predict the death of an individual, and this unfortunate episode neatly demonstrates that the drawing up of nativities was very much open to manipulation and interpretation, as two very different horoscopes were drawn up for the same person.

Certain divinatory treatises were also translated by and ascribed to learned physicians. In addition to onomancy, many of these tracts involved diagrams, the most common being geomancy and chiromancy. This gave these divinatory methods a scientific air, and required a high degree of skill to operate. As discussed in chapter 1, geomancy originally meant divination by the earth as one of the four elements. It was very popular after the twelfth-century translation movement of Greco-Arabic texts into Latin. In the later Middle Ages, geomancy was a complex method of divination which combined astrology and numerology. The geomancer made a random sequence of dots on paper or sand, and then selected and wrote down four figures. He then added twelve figures from his own calculations. The sixteen figures were related to a chart of the cosmos, which gave an answer to the question that had been asked.<sup>328</sup> Several notable, respected medieval physicians translated and put their names to works of geomancy, including the Italian Peter of Abano (c. 1257 – c. 1315) and the French Bernard de Gordon (1260 – c. 1318), both of whose versions survive in manuscripts of English provenance. Geomancy,

<sup>327</sup> This incident is discussed in Hilary M. Carey, *Courting Disaster: Astrology at the English Court and University in the Later Middle Ages* (Basingstoke: Macmillan, 1992), pp. 138-144.

<sup>328</sup> Carole Rawcliffe, *Medicine and Society in Later Medieval England* (Stroud: Alan Sutton, 1995), pp. 100-101.

then, was regarded by certain medical authorities as a respectable art for the learned doctor to practise.<sup>329</sup>

As discussed in chapter 5, chiromancy also emerged in the West through the twelfth-century translation movement. Chiromancies drew conclusions about the fate, career, family life, and death of an individual, and to add authority, some texts were ascribed to Aristotle and Albertus Magnus.<sup>330</sup> Like geomancy, chiromancy required a high degree of skill and had its own individual practitioners. Furthermore, it was concerned with a range of topics.<sup>331</sup> Despite these claims to ancient wisdom and requirements of skill, however, geomancy and chiromancy were never incorporated into the medical curriculum at the medieval university. This was perhaps because of their continued association with necromancy and ritual magic in the multitude of condemnations of 'superstitious practices' that survive from the later Middle Ages.

Thus, a number of prognostics were available to the literate medical practitioner in later medieval England. However, these prognostics must not be regarded as mutually exclusive. Because varied methods of prediction frequently appear together in manuscripts, it is more constructive to see them as components of a vast toolkit from which the practitioner could pick or choose the method he felt most suitable. The 'Sphere' was one of these, and we must now examine the evidence for its appeal to the later medieval English medical practitioner.

#### The manuscript evidence

The clearest evidence of the appeal of the 'Sphere' to the medieval medical practitioner comes from two routes of examination: manuscript ownership, and manuscript context. To begin with manuscripts that can be ascribed ownership by specific physicians: Roger Marchall, graduate in medicine from Peterhouse, Cambridge and later physician to Edward IV, bequeathed a number of manuscripts to his *alma mater* which he had either inherited or written himself (as mentioned in chapter 4). Voigts has identified 43 manuscripts that can be definitely placed in Marchall's possession from selective contents lists in his distinctive hand, plus

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<sup>329</sup> On geomancy, see Braswell-Means, 'Popular Art of Geomancy'; and Laurel Means, 'A Translation of Martin of Spain's *De Geomancia*', in *Popular and Practical Science* ed. Matheson (East Lansing: Colleagues Press, 1994), pp. 61-121.

<sup>330</sup> Láng, *Unlocked Books*, p. 128.

<sup>331</sup> Veenstra, *Magic and Divination*, p. 159.

another six of possible Marchall association.<sup>332</sup> From this corpus of surviving manuscripts in Marchall's ownership, three contain 'Spheres': London British Library MS Harley 267 f. 227r (figure 27 and appendix I:16), Cambridge, Peterhouse Library MS 222, f. 47r (figure 28 and appendix I:17), and London British Library MS Harley 531 ('Sphere' now missing).<sup>333</sup> None of these manuscripts was written by Marchall himself, but were acquired and used by him. His selective contents lists are good indicators of the works within his codices that he found useful or important. Marchall does not mention the 'Sphere' in his contents lists for either Harley 267 or Peterhouse 222, but it is significant that the only reason it is known that a 'Sphere' has been removed from Harley 531 is due to Marchall's contents list. Therefore, one of the most highly trained physicians of the late fifteenth century took some interest in the 'Sphere of Life and Death' in one of his extant manuscripts. Perhaps the different versions of the 'Sphere' text and diagram that he found in each manuscript meant that he chose to rely on one version only.

Another manuscript containing a 'Sphere' that can be tentatively placed in the ownership of a royal physician is London, British Library MS Sloane 521. This is a manuscript comprising two books. The first of these, ff. 8-188, is written in the same neat fourteenth-century hand. This small, portable codex contains a 'Sphere' with two diagrams f. 45v (figure 29 and appendices I:18-19), directly following Giles of Corbeil's *De urinarum judiciis* ff. 25r-45r. It also contains Arnold of Villanova's *Tractatus de conferentibus et nocentibus* ff. 124r-128r and his *Chirurgia* ff. 160r-186v.<sup>334</sup> Furthermore, this manuscript houses two treatises attributed to John Bray (or Braize), royal physician (d. 1381): his *Practica medicinae* ff. 128r-159v, and his *Pilluae ad omnia vulnera ubicunque* f. 159v. Bray was physician to both Edward III (1327 – 1377) and Richard II (1377 – 1399),<sup>335</sup> and as his dates are contemporaneous with the hand in the manuscript it is worth postulating that this volume belonged to him. Regardless of whether or not this is the case, the 'Spheres' in this manuscript appear in the context of learned medicine.

The second kind of evidence which demonstrates the appeal of the 'Sphere' to literate physicians is manuscript context. Oxford, Bodleian Library MS Digby 29, a medical miscellany produced in the fifteenth century, is largely in the hand of

<sup>332</sup> Voigts, 'A Doctor and his Books', pp. 249-314.

<sup>333</sup> London, British Library MS Harley 267, f. 227r; Cambridge, Peterhouse MS 222, f. 47r; and London, British Library MS Harley 531.

<sup>334</sup> London, British Library MS Sloane 521 ff. 25r-45v.

<sup>335</sup> Talbot and Hammond, *Medical Practitioners*, p. 125.

Richard Stapleton, Master of Balliol College around 1430 (figures 9:a-c and appendices 1:7-8). A now-erased, but still legible, inscription at f. 2r states that Stapleton donated the book to the college library, where it was chained, 'Istum librum dedit M. Ricardus (Sta)-pulton cathenandum in libraria collegii Ba...'.<sup>336</sup> The volume consists of a range of treatises, most of which are on the general medical curriculum of the medieval university. For example, the *Antidotarium* of Nicholas of Salerno (fl. c. 1150) is on ff. 244r-247v.<sup>337</sup> This was known to be on the medical curriculum at Oxford in the fourteenth century, as it is included in the *Chancellor's and Proctor's Book*, written sometime before 1350, which set out the standard texts that medical scholars were expected to know and be able to lecture on.<sup>338</sup> This manuscript also contains the *Regimen Sanitatis Salernitanum* ff. 145v-152v, Giles of Corbeil's *De urinis* ff. 76v-144r, and the Hippocratic *Prognostics* ff. 167r-172v. Amongst these tracts of learned medicine are three 'Spheres' ff. 193r-194r (appendices 3 and 4).<sup>339</sup> It is thus clear that Stapleton was interested in medicine, although there is no evidence that he completed a degree at the medical faculty. The other books that Roger Mynors established as donations to Balliol by Stapleton were John Duns Scotus's commentary on Peter Lombard's *Sentences*, which was the standard textbook of the theology faculty (now Oxford, Balliol College Library MS 197); and a miscellany, mainly of theological works, with some medical recipes on the first five folios (now Oxford, Balliol College Library MS 219). The latter contains Arnold of Liège's *Alphabetum Narracionum* on ff. 6r-180r, the *Summa* of Simon of Hinton ff. 181r-231v, and a sermon on confession ff. 231v-234r.<sup>340</sup> So there is as much evidence that Stapleton completed a theological degree as a medical one. As master of the college, Stapleton probably owned a wide range of books. In any case, this book, containing several learned medical texts, was chained in Balliol College Library at some point in the mid-fifteenth century.

Another manuscript containing both the 'Sphere' and learned medical works is London, British Library MS Sloane 3229, a fifteenth-century manuscript written in the same hand throughout. It consists of one work, dedicated to Charlemagne (d.

<sup>336</sup> Oxford, Bodleian Library MS Digby 29, f. 2r. Mynors, *Catalogue of the Manuscripts of Balliol*, p. 382.

<sup>337</sup> On Nicholas of Salerno and the *Antidotarium* see Faith Wallis, 'Nicholas of Salerno', in *Medieval Science, Technology and Medicine: an Encyclopedia* ed. Thomas Glick, Steven J. Livesey and Faith Wallis (New York and Abingdon: Routledge, 2005), pp. 368-369.

<sup>338</sup> 'Incepturi igitur in medicina ... quantum ad practicam, librum *Regimenti acutorum* vel librum *Februm* Ysaac, seu *Antidotarium* Nicholai, legisse tenetur'. *Statuta Antiqua Universitatis Oxoniensis* ed. Strickland Gibson (Oxford: Clarendon, 1931), p. 41.

<sup>339</sup> Oxford, Bodleian Library MS Digby 29, ff. 2r-300r.

<sup>340</sup> Mynors, *Catalogue of Manuscripts of Balliol*, pp. 196-197 and 213-215.

814) with the title 'Versus medicinales editi a Magistris et Doctoribus Salernitanis in Apulia scripti Karolo Magno Francorum gloriosissimo'.<sup>341</sup> This is a version of the *Regimen Sanitatis Salernitanum*, a verse treatise composed in the first half of the twelfth century, which is often dedicated to the king of England but in this case to Charlemagne.<sup>342</sup> The treatise begins by discussing the seven 'naturals' ff. 1r-4r. The second section on the 'non-naturals' includes a wind diagram, followed by a 'Sphere' at ff. 6v-7r, in the same hand as the rest of the work (figure 30:a-b and appendix I:20). It is clear that the wind diagram and 'Sphere' were copied into the codex after the rest of the work, since these two folios lack the red and blue top marginal notes of the rest of the manuscript which indicate the different sections.<sup>343</sup> As the 'Sphere' is in the same hand as the main work, it is tempting to conclude that it was added by the same scribe later on, perhaps realising that s/he had accidentally left two blank folios in the quire. In any case, the scribe certainly felt that the wind diagram and 'Sphere' were appropriate items to include within the *Regimen Sanitatis Salernitanum*: one of the most popular examples of works on regimen and dietetics.

Therefore, several manuscripts of late medieval English provenance contain the 'Sphere' in the context of learned medicine. This is also true of their continental counterparts. One of the most striking examples of a learned medical manuscript containing a 'Sphere' comes from late fourteenth century Italy, now Oxford, Bodleian Library MS Canon. Misc. 307. This manuscript consists entirely of a version of the *Articella*. It is not only this manuscript's contents, to which we shall shortly turn, that point to its intended use by a learned medical scholar or practitioner. Its layout is also clearly scholastic: written throughout in the same hand, in two neat columns, with incipits, explicits, titles and marginal notes in red.<sup>344</sup>

Canon. Misc. 307 opens with Isaac's *Dietarium* ff. 1r-62r, and contains a 'Sphere' f. 62v (figure 24) before returning to *Articella* material, with Isaac's *Book of Fevers* ff. 63r-100v, his *Book of Urines* ff. 101r-110r, and an anonymous commentary on the Hippocratic *On Airs, Waters and Places* ff. 110v-114r. John of Damascenes's *Aphorisms*, with another anonymous commentary, is present ff. 114r-116r, and the

<sup>341</sup> London, British Library MS Sloane 3229, f. 1r.

<sup>342</sup> On the *Regimen Sanitatis Salernitanum*, see Marilyn Nicoud, *Les régimes de santé au Moyen Age: naissance et diffusion d'une écriture médicale (XII<sup>e</sup>-XV<sup>e</sup> siècle)*, 2 vols. (Rome: École Française de Rome, 2007).

<sup>343</sup> London, British Library MS Sloane 3229, ff. 6v-7r.

<sup>344</sup> On this scholastic layout of books, see Christopher De Hamel, *A History of Illuminated Manuscripts* (Oxford: Phaidon, 1986), p. 113.

manuscript ends with versions, perhaps by William of Moerbeke (d. c. 1286), of Galen's *De diebus criticis* book 3 at ff. 116r-121r and *De crisi* on ff. 121r-130v, which ends imperfectly.<sup>345</sup> The 'Sphere' in this manuscript was more than likely included by the scribe after the other tracts were written, on a blank verso page between two texts. Therefore, while it is improbable that this 'Sphere' was intended from the outset to be included in this version of the *Articella*, it can safely be said that it was seen as an item worthy of inclusion by the scribe in the space he had left over in a manuscript whose contents and style place it firmly in the realm of learned medicine.

A second continental medical manuscript, London, British Library MS Arundel 295, was composed in late fourteenth century Germany, probably by a medical practitioner named Godfrey. A 'Sphere' is present f. 268r, with the incipit 'Pictagora Telaucio filio salutem'. This is a reference to Telauges, who was traditionally said to be Pythagoras's son, and is reminiscent of the opening lines of the *Letter of Petosiris to Nechepso*: 'Petosiris Nechepso regi salutem'. This evocation of *Petosiris to Nechepso* adds an authoritative, epistolary air to the text. Internal evidence points to Godfrey as the possible scribe of this manuscript. The first section contains his *Flores* ff. 1r-119v, which consists of a seven-book summary of a variety of medical works including Rhazes's *Antidotarium*. This text seems to be in the tradition of Gilbertus Anglicus's *Compendium medicinae*: learned medicine made practical. Later in this codex is Godfrey's *Summa de dandis cathartidis*, on the administration of purgatives ff. 134r-166v. Later again, Godfrey's commentary on a work ascribed to Macer appears ff. 218r-228r.<sup>346</sup> Godfrey's works are present at separate points throughout the book, in a hand similar enough to be of the same scribe, and no other references to this Godfrey are known. Therefore, it can be hypothesised that Godfrey was the scribe and compiler of this book, slotting his own works, which include summaries of the treatises of respected authorities in university medicine, next to more empiric medical texts including charms (defined by Lea Olsan as 'spoken, chanted and written formulas, derived ultimately from a traditional oral genre and circulated both by word of mouth and through manuscript and amuletic texts'),<sup>347</sup> astrological information and texts on uroscopy.

<sup>345</sup> Oxford, Bodleian Library MS Canon. Misc. 307, ff. 1r-130v.

<sup>346</sup> London, British Library MS Arundel 295.

<sup>347</sup> Lea, T. Olsan, 'Charms in Medieval Memory', in *Charms and Charming in Europe* ed. Jonathan Roper (Basingstoke: Palgrave Macmillan, 2004), p. 60. On charms see also Don C. Skemer, *Binding Words: Textual Amulets in the Middle Ages* (University Park: The Pennsylvania State University Press, 2006).

Yet another manuscript containing a ‘Sphere’ from continental Europe now survives as London, Wellcome Library MS 562, produced in late fifteenth century Catalonia. This is evidenced by the presence of several treatises and short recipes in Catalan, such as the incantation against enemies on the second flyleaf. The codex also contains the *Regimen conferens memoriae* of Arnold of Villanova (1235 – 1313) on maintaining or achieving a good memory ff. 26r-28r, and the *Liber duodecim aquarum* of Petrus Hispanus (d. 1277), an alchemical treatise, ff. 28r-34v. A ‘Sphere’ titled ‘Spera Donati’ appears on f. 62r (figure 31). This is the third leaf from the end after a number of blank folios, and lists the planetary weekdays in Catalan.<sup>348</sup> Given the small size of the book, the three different hands that it contains, and the fact that it is unfinished, one can hypothesise that it was a working notebook which was added to as necessary. This is a practical notebook intended to be used. The ‘Sphere’ may well appear amongst blank pages in order to hide occult material among more acceptable works. These three manuscripts, while serendipitously discovered, are from a range of locations – Italy, Germany, and Catalonia – and show that the ‘Sphere’ was used as a medical prognostic in Europe, as well as England.

The above evidence from manuscripts demonstrates that the ‘Sphere of Life and Death’ circulated in England, and further afield, with some of the most important learned tracts of medicine of the later Middle Ages. These treatises included various versions of the *Articella*, the *Regimen Sanitatis Salernitanum*, and the *Antidotarium*, among many others, and the ‘Sphere’ was sometimes incorporated into these tracts in the manuscripts.

#### The ‘Sphere’ in the context of learned medicine

On first impressions, it is not obvious why the ‘Sphere of Life and Death’ circulated with learned, orthodox medical texts considering the illicit nature of onomancy and the almost childish simplicity of the process. But in fact there are several reasons for its popularity amongst educated physicians. The first is that the ‘Sphere’ made use

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<sup>348</sup> London, Wellcome Library MS 562, ff. 26r-62r. The *Spera Donati* in this manuscript is not the same as the *Spera Donati* found in other manuscripts. The *Spera Donati* proper adds the numerical value of the mother’s name to the working-out process. This version appears in e.g. London, British Library MS Egerton 821, ff. 15r-v, produced in the south of France c. 1175. See Juste, *Alchandreana primitifs*, pp. 325-326.

of a lunar and planetary element, which was in harmony with mainstream medical doctrine (discussed in chapter 2). With the rise of astrology in scholastic medicine from the twelfth century onwards, this lunar and planetary element directly linked the 'Sphere' to orthodox medicine. The second reason was the historic association of the 'Sphere' with respectable tables of *computus*. While the manuscript context of the late medieval 'Sphere' is not primarily that of time-keeping as it is for the early medieval examples (c. 800 – c. 1125), these older manuscripts of *computus* still circulated and 'Spheres' may have continued to be copied from them.

A third explanation for the popularity of the 'Sphere' among learned practitioners was perhaps its frequent attribution to ancient, revered philosophers and scientists (see chapters 3 and 4). In the Middle Ages, as we saw, attributions of these devices to Pythagoras, Apuleius, Apollonius, Petosiris, and Crato, among others, were common. It was quite usual for texts to be spuriously attributed to respected authorities throughout the Middle Ages: the more revered the 'author', the more powerful the text was seen to be. This applied just as much to medicine as any other discipline. Orthodox medical texts were spuriously attributed to authors like Hippocrates or Galen, and astrological-medical tracts were often assigned to the likes of Haly Abbas (in Arabic, al-Majusi) or Ptolemy.

The fourth element in the popularity of the 'Sphere' was that it claimed to provide a definite outcome: the patient would either live or die (although corruptions in Latin translation meant that this was not always the case). The Hippocratic-Galenic *Signs of Death*, sphygmology, uroscopy, and astrology were all open to interpretation and could require years of observation and training on the part of the practitioner. Another factor which helps to explain the popularity of the 'Sphere' was the speed with which a result could be achieved, and its claim to offer a definite answer, compared to other learned medical prognostic methods. A practitioner did not need to spend years getting to know his patient's usual demeanour as he would with the Hippocratic-Galenic 'Signs of Death', and nor did he need to interpret these signs; he did not need to wait for the patient to pass urine; and he did not have to spend several hours counting time between pulses. Neither did he have to spend time drawing up complex astrological predictions, for which he would need to know much more information about the patient than simply his name and the day on which he fell sick. Nativities, for example, required knowledge of the date of birth of the client – something which the patient himself might not even know (see chapter 1). And of course, the prediction could be done *in absentia*, provided the operator had all the



necessary information. This might be particularly important in the late medieval environment of recurring epidemic diseases such as plague and sweating sickness.

Perhaps the most intriguing possible reason, however, for the popularity of the 'Sphere' among the medical elite can be found by examining the medical deontological texts of the late thirteenth and fourteenth centuries, which set out the rules by which the learned physician was expected to conduct himself. From the last quarter of the thirteenth century, across the Latin West, learned medical men compiled these texts on medical etiquette for the new university-trained physician.<sup>349</sup> Essentially, the educated practitioner needed to get it right, and not least in regard to an accurate prognostication of life or death. These medical deontological texts sprang up in part as a way of standardising medical practice and maintaining the reputation of the growing medical profession, and must be seen in this context.

John Mirfield's *Breviarium Bartholomei* (discussed in chapter 1) dedicates the majority of chapter 88 to medical deontology. In terms of the prediction of life or death, it states:

[The physician should] permit his patients to indulge themselves in whatever is pleasing to them (provided that this be not prejudicial to his treatment), and by means of blandishments, and of pleasant and soothing speeches, he should comfort his patient, and on every occasion should promise him restoration to health, even if the physician himself shall regard the case as desperate; for by means of such heartening words the sick man is imbued with a courage which strengthens his constitution and fortifies it to resist the disease; so that from Nature herself there proceeds a reaction which is more efficacious than that produced by the physician with his instruments and medicines. Let the physician, however, acquaint the friends of his patients with the truth, and discuss the case fully with them as he shall deem best, lest he incur scandal or loss of reputation from inability to proffer a satisfactory statement of the case, and lest the friends of the patient regard him with distrust: nor will he be held responsible for having caused the death of the patient who shall die; but he will be given credit for having cured the man who lives and is restored to health.<sup>350</sup>

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<sup>349</sup> On late medieval medical ethics, see Michael R. McVaugh, 'Bedside Manners in the Middle Ages', *Bulletin of the History of Medicine* 71:2 (1997), pp. 201-223; Luis García-Ballester, 'Medical Ethics in Transition in the Latin Medicine of the Thirteenth and Fourteenth Centuries: New Perspectives on the Physician-Patient Relationship and the Doctor's Fee', in *Doctors and Ethics: The Earlier Historical Setting of Professional Ethics* ed. Andrew Wear, Johanna Geyer-Kordesch and Roger French (Amsterdam and Atlanta: Rodopi, 1993), pp. 38-71; and Roger French, 'The Medical Ethics of Gabriele de Zerbi', in *Doctors and Ethics* ed. Wear et al. pp. 72-97.

<sup>350</sup> John of Mirfield, *Breviarium Bartholomei*, ed. and trans. Horton-Smith Hartley and Aldridge, *Johannes de Mirfield*, p. 125.

Thus Mirfield, and the earlier authors that he is paraphrasing in this passage, had a good awareness of the effects of mental attitude on physical health. This notion can be directly linked to Galenic medicine, and the *Regimen Sanitatis Salernitanum* discussed earlier in this chapter. The sixth 'non-natural' was made up of the *accidentia animi* – the emotions. These were regarded as both physical and mental, and were named as joy, anger, anxiety, fear, sadness, and shame.<sup>351</sup> Mirfield's point is fairly straightforward: the physician should do all he can to keep the patient's spirits up and reassure him or her of recovery. However in reality, the situation in which the late medieval physician found himself at the patient's bedside was far more complicated.

Throughout the Middle Ages, there was a real fear of sudden death, and, as the period drew to an end, the concept of purgatory was a main current in medieval theology (see Introduction).<sup>352</sup> The idea that anyone could die without having received extreme unction and end up in purgatory for longer than necessary was terrifying, and therefore it was paramount that anyone on their deathbed had a priest summoned to them before it was too late.<sup>353</sup> However, if the physician called in a priest, he would go against the advice in deontological texts to convince the patient at all times that he would recover. The sight of the priest could well be enough to make the patient lose hope, and therefore, literally, the will to live. This was acknowledged in Canon 22 of the Fourth Lateran Council of 1215, which stated that all patients must confess before receiving medical treatment:

...we by this present decree order and strictly command physicians of the body, when they are called to the sick, to warn and persuade them first of all to call in physicians of the soul so that after their spiritual health has been seen to they may respond better to medicine for their bodies; for when the cause ceases so does the effect. This among other things has occasioned this decree, namely that some people on their sickbed, when they are

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<sup>351</sup> Melitta Weiss-Adamson, 'Regimen Sanitatis', in *Medieval Science Encyclopedia* ed. Glick et al., p. 438.

<sup>352</sup> On purgatory in the Middle Ages, see Clive Burgess, 'A Fond Thing Vainly Invented': An Essay on Purgatory and Pious Motive in Late Medieval England', in *Parish, Church and People: Local Studies in Lay Religion, 1350-1750* ed. S. J. Wright (London: Hutchinson, 1998), pp.56-84; and Jacques Le Goff, *The Birth of Purgatory* trans. Arthur Goldhammer (Aldershot: Scolar Press, 1990).

<sup>353</sup> On extreme unction, see Paxton, *Christianizing Death*, p. 194; and Jaroslav Pelikan, *The Christian Tradition: A History of the Development of Doctrine*, vol. III (Chicago: The University of Chicago Press, 1978), pp. 30 and 211.

advised by physicians to arrange for the heath of their souls, fall into despair and so the more readily incur the danger of death.<sup>354</sup>

Therefore, a physician could find himself in a no-win situation, caught between the regulations of his profession on the one hand, and the rules of canon law on the other. We can see just how difficult giving a prognostication of life and death was in the example of Master Brinkley, a practitioner who, in 1479, examined the urine of Thomas Betson (d. 1485). After the examination, Brinkley refused to commit himself to an expectation of the patient's life. A letter from Richard Bryan to Sir William Stonor (c. 1449 – 1494) states that:

... on Thursday my lady Croke came to Stebenhith and brought with her master Brinkley to see Betson, and in feith he was a verrey sike man: and or he departed he gave him plasters to his hede, to his stomake, and to his bely, that he alle that nyght was in quiete rest: and he came to hym ayene on ffriday and sye his water: and he was well amendid, and so seid alle the people that were aboute him: not withstanding he will not determyne him whether he shall live or dye as yet, but and he may kepe him alive till Tuesday none he will undertake him.<sup>355</sup>

It may have been the case that Brinkley simply could not foretell the outcome of the illness either way from inspecting the patient's urine. But it is equally likely that he found himself in perplexity about how much he should reveal to Betson, and was unwilling either to lie, which might lower his patient's spirits; or to risk prognosticating life when the patient might die and harm Brinkley's reputation in the process. Happily, Betson made a full recovery.<sup>356</sup>

How might a 'Sphere' help the practitioner in negotiating between caring for the soul and the body of his patient? As discussed in chapter 3, the 'Sphere' had become corrupted in its translation from Greek, and the number-letter correlations vary widely from device to device, as well as lucky and unlucky remainders. And sometimes, particular remainders simply do not appear in the centre of the 'Sphere' at all, or appear in both hemispheres. For example, London, British Library MS Additional 15236 f. 108r-v written in the thirteenth or fourteenth century, does not have ten as a remainder (figures 5:a-b and appendix I:3); and London, British

<sup>354</sup> *Fourth Lateran Council – 1215 XXII, Decrees of the Ecumenical Councils* trans. Norman P. Tanner, vol. I: Nicaea I to Lateran V (Washington D. C.: Georgetown University Press, 1990), pp. 245-246.

<sup>355</sup> *The Stonor Letters and Papers 1290-1483* ed. Charles Lethbridge Kingsford, vol. II (London: Royal Historical Society, 1919), p. 88.

<sup>356</sup> On the relationship between Betson and the Stonors, see Alison Hanham, 'The Stonors and Thomas Betson: Some Neglected Evidence', *The Ricardian* 15 (2005), pp. 33-52.

Library MS Harley 5311 f. J has twenty-four as a remainder in both the top and bottom hemispheres (figure 32 and appendix I:21).<sup>357</sup> Thus, while the ‘Sphere’ purported to provide a definite answer as to whether the patient would live or die, sometimes it did not. It is clear from surviving deontological texts that an ambiguous prediction of the patient’s fate could in many cases be useful to the learned doctor, as he could absolve himself from responsibility and leave the matter up to God. Another possibility was that if the remainder simply did not appear at all, then the physician could, with all honesty, give the patient or his family an ambiguous answer and extract himself from having to make a difficult call, without lying.

This usefulness of ambivalence could also be a factor in the existence of multiple ‘Spheres’ in the same manuscript, often side by side. The late twelfth-century manuscript London, British Library MS Royal 7 D XXV, f. 75r contains two ‘Spheres’ with different central remainders: one is the Pythagorean-Apuleian redaction, the other Cratonian (figure 1 and appendices I:1-2).<sup>358</sup> British Library MS Royal 12 E XXV ff. 164v-165v, written c. 1300, contains two devices with different central remainders, and additionally two sets of number-letter correlations on ff. 164v-165v (figures 33:a-c and appendices I:22-25).<sup>359</sup> Thus, a practitioner might take readings from both devices. Alternatively, a practitioner could take a reading for both the patient’s name in the vernacular and converted into its Latin equivalent. As seen earlier in this chapter, London, British Library MS Harley 3719, f. 176v contains instructions to convert the name in this way.<sup>360</sup> If the outcomes were at odds with each other, either between one device and the other, or between the Latin and vernacular spellings of the patient’s name, the physician could tell the patient that the results were unclear and bow out of the case with his conscience intact and reputation unscathed.

### Conclusion

The ‘Sphere of Life and Death’ was a unique device among the medical prognostics of the Middle Ages, because it could be used by medical practitioners across the social scale provided they had some numeracy and literacy, at the same time seeming sophisticated while being quick and easy to use. That it appealed to the

<sup>357</sup> London, British Library MS Additional 15236, ff. 108r-v; London, British Library MS Harley 5311, leaf J.

<sup>358</sup> London, British Library MS Royal 7 D XXV, f. 75r.

<sup>359</sup> London, British Library MS Royal 12 E XXV, ff. 164v-165v.

<sup>360</sup> London, British Library MS Harley 3719, f. 176v.

learned practitioner is evidenced by manuscript context. This popularity is explained by the 'Sphere' using a lunar and planetary element in line with mainstream medical philosophy; its historic association with respected tables of computus; its ascription to revered, respected ancient authorities; and the fact that it purported to offer a definite answer. That the 'Sphere' did not always offer such an answer, however, explains what is perhaps the most interesting reason for its attractiveness, which was the ambivalence raised by corruptions in the number-letter correlations and remainders as a result of translation from Greek. Any learned physician wishing to distance himself from a tough call might do so by recourse to such a device. It was not only the manuscripts of physicians, however, which contained the 'Sphere'. The appeal of this device to the gentry and aristocracy will now be discussed.

## Chapter 7

### The 'Sphere' in manuscripts for the gentry and aristocracy

#### Introduction

As we saw in chapter 6, the 'Sphere' circulated in manuscripts along with learned medical treatises, and can even be placed in the ownership of one, perhaps two, royal physicians. However, the 'Sphere' was not only used to predict life or death. It also claimed to predict the outcome of a duel or battle, and a variety of other situations requiring a binary yes/no answer. Perhaps for this reason, the 'Sphere' appealed to certain members of the gentry and aristocracy. This chapter will be divided into two parts. The first will look at the manuscript evidence for the ownership of the 'Sphere' in gentry circles. Why would aspiring laypeople of the later Middle Ages have use for such a device? The second section will deal with the manuscript evidence for the 'Sphere' as an item for the aristocracy, looking at a particular version of the device that circulated in the later part of the fifteenth century. This redaction makes use of the secular, aristocratic authority of the judicial duel. It will analyse the practice of divination and astrology at the English royal court in the later Middle Ages, and show why a 'Sphere' might have been popular with those at the very top of the social scale as an item that could potentially be used by nobles and kings themselves as well as occult practitioners. While there were inherent problems with using the 'Sphere' to predict the victor in trial by battle, the ambiguity and uncertainty raised by this were by no means always a disadvantage. The 'Sphere' could also be used, for example, to work out on which day a duel should take place to maximise victory for a desired winner (and/or defeat for a desired loser).

#### The 'Sphere of Life and Death' and the gentry

What was the English gentry? This is not an easy question to answer. It is difficult to clearly define the English gentry and categorise it as a distinct, contained social class, and at least three theories exist for its development in the later Middle Ages. Different scholars have been so far unable to unambiguously define 'gentry': for example, Eric Acheson and Susan M Wright both come to the same broad conclusions about the uncertain nature of the gentry in their respective studies of

Leicestershire and Derbyshire.<sup>361</sup> Peter Coss, however, has outlined six criteria for membership of the medieval gentry. The gentry was a lesser nobility, based on land and land ownership. Furthermore, it was a territorial elite with an interest in public authority, and it sought to exercise collective social control over the populace on a territorial basis. It had a collective identity and interests.<sup>362</sup> The gentry, then, represented an aspiring stratum of society that was always keen to express its power and status. The circulation of books between families of a similar standing was a very simple and immediate way of doing so. The texts that a particular family had access to could be used as a valuable expression of power and status.<sup>363</sup>

Cambridge, Trinity College MS O.1.57 was written in the first half of the fifteenth century. That it was both written and owned by members of the Haldenby household of Isham, Northamptonshire is indisputable: it contains the obituaries of several Haldenby family members in the Kalendar at the beginning ff. 1r-8r, such as Robert Haldenby f. 3v, and the Haldenby's in-laws, two John Mortemers, f. 4r. As Laura Mitchell points out, these genealogical entries for both families give the manuscript a *terminus post quem* of 1454.<sup>364</sup> In court records, the Haldenbys are described as 'esquire', and the aforementioned Robert was escheator of Northampton and Rutland in 1394 and 1400 and commissioner of the peace in 1409. The fact that certain Haldenbys held public office, coupled with the designation as 'esquire' in records, places the family firmly in the ranks of the gentry.<sup>365</sup>

The manuscript is written in ten different hands. Unfortunately, it is not possible to put any names to any of the hands. There is some tentative evidence, however, of individual identity, such as the inscription at the bottom of f. 16v, 'Wodenham ad Haldenby'; the colophon after a chiromantic tract f. 118v, 'Explicit libellus compositus a magistro Johanni. Iste liber constat Haldynby'. Additionally, the poem on f. 125r was composed by a William. Mitchell postulates that John and William Haldenby might have been the scribes or even authors of these last two treatises.<sup>366</sup>

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<sup>361</sup> Eric Acheson, *A Gentry Community: Leicestershire in the Fifteenth-century, c.1422 - c.1485* (New York: Cambridge University Press, 1992); and Susan M. Wright, *The Derbyshire Gentry in the Fifteenth-century* (Chesterfield: Derbyshire Record Society, 1983).

<sup>362</sup> Peter Coss, *The Origins of the English Gentry* (Cambridge: Cambridge University Press, 2003), p. 11.

<sup>363</sup> On the medieval gentry, see also Malcolm Mercer, *The Medieval Gentry: Power, Leadership and Choice During the Wars of the Roses* (London: Continuum, 2010).

<sup>364</sup> Laura Theresa Mitchell, 'Cultural Uses of Magic in Fifteenth-Century England' (Unpublished PhD thesis, University of Toronto, 2011), p. 102.

<sup>365</sup> Mitchell, 'Cultural Uses of Magic', p. 102.

<sup>366</sup> Mitchell, 'Cultural Uses of Magic', pp. 104-105.

However, this manuscript could have been written by members of the family themselves, servants, professional scribes, or a mixture of all three. The most likely scenario for the compilation of the book is that interesting tracts were discovered in the manuscripts of neighbouring families, nearby monasteries or passing travellers, and copied into the volume by whichever literate member of the household was available at the time.

This book contains a number of practical texts. As Mitchell points out, there was a subgroup of the gentry who were becoming very interested in medical and scientific treatises by this time, such as Robert Thornton (c. 1397 – c. 1465), a Yorkshire landowner and scribe. Two of Thornton's books survive as Lincoln, Cathedral Library MS 91 and London, British Library MS Addition 31042. These books are miscellanies, consisting of narratives, poems and medical recipes, as well as charms and other magical formulae. Other gentry families in late medieval England known to have possessed similar scientific and occult text include the Stapletons of Suffolk, who owned Princeton, University Library MS Garrett 141. This manuscript is comparable in contents to Cambridge, Trinity College Library MS O.1.57: it includes, among other works, divinatory and prognosticatory treatises.<sup>367</sup> Therefore, it should be of no surprise that the Haldenbys owned a commonplace book containing such items. Dotted throughout the manuscript are medical treatises, receipts, and charms. There is a vein man f. 16v; a tract on prognostication by thunder ff. 70r-70v; a chiromantic tract ff. 110v-118v; the oneiromantic tract *Somnia Danielis* (discussed in chapter 1) ff. 119r-124r; and a charm to find a thief by means of a loaf of bread f. 126v. This book was originally in twelve quires, but two have since been lost. A contents list in a contemporary hand (figure 21) on the verso of the fourth flyleaf demonstrates that the missing folios 33-68 contained a 'Sphere' f. 55, sandwiched between the *Tractatus algorismi* f. 33 and the *Tractatus de cautelis algorismi* f. 57.<sup>368</sup> Aside from its description as 'Spera pictagori' in the contents list, it is impossible to know the textual redaction of this particular 'Sphere'. It is quite likely that the missing quires were taken out by someone who wished to use them independently of the Haldenby family volume, and they have since been lost or remain unidentified. It is even worth speculating that, since the missing quires contain two mathematical tracts on the arithmetical curriculum at medieval Oxford

<sup>367</sup> Mitchell, 'Cultural Uses of Magic', p. 96. On Thornton's medical manuscripts see also Julie Orlemanski, 'Thornton's Remedies and the Practices of Medical Reading', in *Robert Thornton and his Books: Essays on the Lincoln and London Thornton Manuscripts* ed. Susanna Fein and Michael Johnston (York: York Medieval Press, 2014), pp. 235-255.

<sup>368</sup> Cambridge, Trinity College Library MS O.1.57.



(and perhaps Cambridge), a family member studying at one of these universities decided that these quires were put to their best use if removed from the main volume for the purposes of study. Emden's prosopography of medieval Cambridge lists a John Haldenby, described as being 'of noble birth'. This John was a fellow of King's Hall, admitted in 1475 or 1476, and vacated 1480 or 1481. He was made rector of Baldock, Hertfordshire in 1477 and also held multiple benefices in Yorkshire. It is possible that this John was a member of the same Haldenby family of Isham who owned this manuscript.<sup>369</sup>

The possession of divinatory items, charms and medical information was a status symbol for families of the lower gentry. When books such as this were lent to and seen by other families of similar standing, items such as the 'Sphere' gave an impression of importance. At the same time, the 'Sphere', like many of the other items in Cambridge, Trinity College Library MS O.1.57, also had a practical value for gentry families. The information the 'Sphere' claimed to reveal was just the sort to interest those who had the responsibility of running the house. The Haldenby's codex is a classic example of a 'commonplace book' - a collection of useful knowledge about various subjects that a master or mistress of the house might need, such as recipes for minor ailments, works of religious instruction and entertainment.<sup>370</sup> The gentry, then, saw the medical and magical texts that they owned, including the 'Sphere', as both practical items and ways of promulgating their image of power. The status that the gentry aspired to, that of the aristocracy, also had use for predictive items such as the 'Sphere', and it is to the aristocracy that we will now turn.

#### The 'Sphere' and the aristocracy

The courts of late medieval Europe were home to a wide variety of courtiers, professionals and entertainers. Within this vast group, practitioners of the occult often had a prominent place, and England was no exception. At least from the reign of Edward III until the end of the Middle Ages and beyond, royal courts hosted a

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<sup>369</sup> A. B. Emden, *A Biographical Register of the University of Cambridge to 1500* (Cambridge: Cambridge University Press, 1963), pp. 279.

<sup>370</sup> Taavitsainen, *Middle English Lunaries*, p. 148.

variety of such practitioners.<sup>371</sup> These might include astrologers, diviners, alchemists, and learned physicians who used astrology and divination for medical purposes. Despite the great popularity of those who claimed the ability to predict the future, at court and perhaps with the king himself, the powers attributed to these practitioners could just as easily leave them open to accusations of black magic and treason as earn praise (see the case of Eleanor Cobham, discussed in chapter 5). Such practitioners came under fire from contemporary commentators. As early as the 1150s, John of Salisbury (discussed in chapter 5) disapproved of their presence at court and their claims of prediction, believing them to be, at best, tricksters. Thus, the place of the occult practitioner (and by association, the physician) at court was precarious at the best of times.

It is not difficult to understand why knowledge of future events was enticing to kings, princes, and aristocrats, as well as a variety of other people present at court. As far as the monarch was concerned, any advantage he might gain over enemies abroad or at home might be welcome. As for those below him, anxiety about the future in an environment where one could fall from favour at any time was no doubt common. Thus, ways of predicting the future, either to allay one's fears or to try and change events in the face of impending disaster were useful. Astrology and divination often claimed to predict the outcome of events of interest to the ruling classes: most notably, the winner in a duel, the victor in battle, or the outcome of a long journey. Fortune-telling methods could also be used to work out the best day to undertake a particular activity, and for this the 'Sphere' was particularly useful. The remainder of this chapter will begin by examining what is known of divination at the English court, before analysing a particular 'Sphere' redaction that discusses the judicial duel, hinting at aristocratic interest. It will then discuss the two judicial duels mentioned in this redaction, and provide some conclusions as to why the 'Sphere' might be appealing and useful to those wishing to predict the outcome of trial by combat.

We must first examine the evidence for the presence of divinatory treatises and techniques at the English court. In March 1391, an occult practitioner, possibly an Irishman, finished a lavishly decorated geomantic compilation for King Richard II (1377 - 1399), then a young man of 24, who had sat on the English throne since the

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<sup>371</sup> On the presence of occult practitioners at the late medieval English court see Carey, *Courting Disaster*; and Jonathan Hughes, *Arthurian Myths and Alchemy: The Kingship of Edward IV* (Stroud: Alan Sutton, 2002).

age of ten. This book survives as the lavishly decorated Oxford, Bodleian Library MS Bodley 581. That Richard owned a book of geomancy, however, is not evidence in itself for a personal interest in the art of divination. Books of this sort were being produced at the same time for his contemporaries and near-contemporaries, such as Charles V of France (1364 - 1380), John, Duke of Berry (1340 - 1416), and Wenceslaus II of Bohemia (1278 - 1305). Therefore, such an item could equally have been commissioned by or made for Richard to have as the latest fashionable showpiece.<sup>372</sup> However, if Richard did take an active interest in divination, it would not be difficult to see why. Richard had a particularly insecure reign. He was a young king, who had, in 1387-1388, seen off a severe threat to his rule and prerogative by five nobles (the Lords Appellant). As Nigel Saul points out, it is very likely that for a few days in late 1387 Richard actually ceased to rule the kingdom, and the blow left him psychologically scarred for life. He spent the rest of his reign until 1399 obsessed with his regality.<sup>373</sup> A king in Richard's precarious position, then, might want to know what the future held, and as the scribe of Richard's book points out, geomancy was easier for a non-expert to get to grips with than astrology:

Since the science of astrology is both of great difficulty and is time-consuming to learn, for which the present life is scarcely sufficient, I have compiled this present little book of geomancy, not from my own views, but from the rules and precepts of established authorities in this art, up to the year of Our Lord 1391, in the month of March.<sup>374</sup>

It seems that the book's compiler, at least, intended Richard to practice geomancy himself.

Whether or not Richard took an active interest in divination, the fact that he owned this book indicates that he was at least not opposed to geomancy. Geomancy's status was ambiguous after all: the *Speculum Astronomiae* attributed to Albertus Magnus, written soon after 1260, was produced to defend astrology as a Christian practice. As well as providing a defence of astrology, the *Speculum* made the point that geomancy was licit, 'since it relies on Saturn and the lord of the hour, which are put down as its root, and it rejoices to be based in the ratio of number; and there are

<sup>372</sup> Oxford, Bodleian Library MS 581. Discussed in Carey, *Courting Disaster*, p. 23.

<sup>373</sup> The incident is discussed in detail in Nigel Saul, *Richard II* (New Haven and London: Yale University Press, 1997), pp. 148-204.

<sup>374</sup> Oxford, Bodleian Library MS Bodley 581, f. 9v. Trans. in Hilary M Carey, 'Astrology at the English Court in the Later Middle Ages', in *Astrology, Science and Society: Historical Essays* ed. Patrick Curry (Woodbridge: Boydell, 1987), p. 45.

many who bear testimony in its favour'.<sup>375</sup> The *Speculum* in turn found its way into Richard's book of geomancy, which made it unambiguously clear to the king that geomancy was a permissible art. And what was fashionable for the king was fashionable for his courtiers. After Richard, luxury books of geomancy were owned by two of the most powerful nobles of the fifteenth century: Humphrey of Lancaster, Duke of Gloucester (1390 - 1447), and John, Duke of Bedford (1389 - 1435), both of whom were brothers of the future King Henry V (1413 - 1422).<sup>376</sup>

Therefore, there is evidence that kings and the highest ranks of aristocracy possessed books of geomancy, but there is no evidence for actual use of these books by such men. Unfortunately it is difficult to reconstruct which occult practices took place at court, if any took place at all. This is firstly due to the vague terminologies used by contemporaries to describe the kinds of practitioner at court and the varieties of practices used. 'Diviners' could be used to mean 'astrologers', for example, and astrology, magic, and divination were often grouped together in categories such as *sortilegium* or *superstitio*. As discussed in chapter 5, John of Salisbury's *Policraticus* lists the occult practices he is criticising, but it is clear that John was copying the list of illicit practices from Isidore of Seville rather than reflecting what actually took place. His addition of chiromancy to the list is interesting, and we know that chiromantic texts were circulating by the 1160s, but that is not strong enough evidence in itself that chiromancers were present at Henry II's court, or that anyone practised chiromancy there. However, at least from the reign of Edward III onwards, some astrology was practised at court. Carey's methodical work on the patronage of astrologers by later medieval English kings leaves no doubt that this was the case from at least the end of the fourteenth century, possibly earlier.

Geomancy and chiromancy, then, were perhaps practised at the late medieval English court. But what of onomancy, and the 'Sphere' specifically? In terms of aristocratic ownership of the 'Sphere', it can be hypothesised that luxury manuscripts from the fourteenth and fifteenth centuries containing 'Spheres' were conceived or made for a particular noble patron. A good example of such a manuscript is the lavishly-illuminated Oxford, Bodleian Library MS Digby 46, written

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<sup>375</sup> Albertus Magnus(?), *Speculum Astronomie*, trans. in Paola Zambelli, *The Speculum Astronomie and its Enigma: Astrology, Theology and Science in Albertus Magnus and his Contemporaries* (London: Kluwer, 1992), p. 273.

<sup>376</sup> Carey, *Courting Disaster*, p. 22.

in the late fourteenth century. This contains the *Experimentarius* of Bernard Silvester (d. after 1159),<sup>377</sup> including the *Prenostica Pictagore* (discussed in chapter 5) ff. 2v-92v and the *Ars Geomantiae* ff. 93r-106v. A selection of 'Spheres' is present ff. 107r-v (figures 26:a-b) and the manuscript concludes with geomantic tables ff. 109v-end.<sup>378</sup> Without any specific indication of ownership, however, it is not possible to be certain whether this manuscript was intended for use by the aristocracy. It is, in fact, a particular 'Sphere' redaction extant in manuscripts from the very end of the Middle Ages which provides the best evidence of aristocratic interest in the 'Sphere' in late medieval England.

In the second half of the fifteenth century, a manuscript was produced, possibly at Oxford, now London, Society of Antiquaries Library MS 306. This manuscript contains a 'Sphere' f. 30r, with a very long accompanying text f. 29v (figures 34:a-b and edition appendix I:26). Along with the diagram, there is a statement placed next to two coats of arms, 'This Sphere of Pythagoras has been proven by Lord Henry Duke of Lancaster, fighting in the presence of the French king, and John of Annesley. The shields of these lords are present here'.<sup>379</sup> This refers to two separate incidents of duels that had taken place in the previous century: the first between Henry Grosmont, first Duke of Lancaster (c. 1310 – c. 1361) and Otto, Duke of Brunswick-Luneberg (1330 – 1352) (or perhaps his son, Otto), at Paris in 1352. The second was between Sir John Annesley (d. 1410) and Thomas Caterton (d. 1380) in June 1380 at Westminster. The manuscript context of this particular 'Sphere', and that of two manuscripts which also contain this redaction, reveals much about possible ownership. Copied onto f. 1r is the rite of absolution, and f. 1v includes an excerpt from Smaragdus's *Rule of Saint Benedict*. On f. 2r is a tract on elocution, 'Nota bona de recto modo loquendi', before John of Sacrobosco's *De sphaera mundi* ff. 2v-19r, the university text of astronomy in the later Middle Ages and a very common travelling companion of the 'Sphere' (discussed in chapter 8). This manuscript also includes the *De algorismo* of Alexander de Villa Dei (c. 1175 – c. 1154) ff. 31r-53r, and treatises on the quadrant and proportion, as well as divinatory texts: the 'Sphere', a chiromantic tract ff. 28v-29r, and the *Somnia*

<sup>377</sup> On the *Experimentarius* of Bernard Silvester see Charles Burnett, 'What is the *Experimentarius* of Bernardus Silvestris? A Preliminary Survey of the Material', *Archives d'histoire doctrinale et littéraire du moyen âge* 44 (1977), pp. 62–108. Reprinted in Burnett, *Magic and Divination*, XVII.

<sup>378</sup> Oxford, Bodleian Library MS Digby 46.

<sup>379</sup> 'Probata fuit hec spera pictagore per dominum Henricum ducem lancastrie coram Rege Francie pugnante et de domino Iohanne de Anneslay quorum dominorum hec scuta presencia sunt'. London, Society of Antiquaries Library MS 306, f. 30r.

*Danielis* f. 64r-71v. There is also a reference to Oxford on f. 1v, in a small two-line prophetic verse, 'Cronica si penses cum certent Oxoniensis, post paucos menses bellabunt Angligenensis'.<sup>380</sup> This reference is not enough evidence in itself to place the manuscript at Oxford University in the late fifteenth century. However, given both the codex's contents and the fact it is in one hand throughout (that of a scribe named 'Newland', as per colophon on f. 53r), it is conceivable that this manuscript was produced by or for a scholar of the liberal arts, possibly at Oxford. Its small size indicates that it was a book designed to be used, which fits in with this hypothesis.

Moreover, evidence from other manuscripts provides further evidence of a link of this redaction of the 'Sphere' with Oxford. The unusually long accompanying text beginning 'Prenostico Pictagore' (possibly due to confusion between the 'Sphere' and the lot-drawing text discussed in chapter 5 entitled *Prenostico Pitagore*) and its hailing of Henry Grosmont and John of Annesley, is copied in two later manuscripts: London, British Library MS Sloane 1620 f. 70v, and Oxford, Bodleian Library MS Ashmole 340 ff. 107r-108r (figures 35:a-c) both composed around 1500. London, British Library MS Sloane 1620, a composite manuscript of which ff. 56r-84v form one unit, contains a marginal note in a later hand at the top of f. 56r, which is almost illegible, apart from the following, 'De Magistro Belle in collegio Universitatis in Oxonio haec quatuor ... tum anno (?). dato ... Shirkeld'. The fact that this is in an early modern hand means that it must be treated as tentative evidence for the location of this manuscript around 1500, and the contents of this section of the manuscript indicate that it might have a scholastic origin. Arithmetic tracts are present ff. 56r-64v, and astrological and astronomical tracts make up the rest of the booklet, as well as three 'Spheres' and accompanying texts ff. 65r-66v, and ff. 70v-71v.<sup>381</sup>

Despite the tantalising attribution in this redaction of the 'Sphere', the manuscript evidence for the actual use of the 'Sphere' by aristocrats (or those aspiring to such a lifestyle) is hardly conclusive. However, on examining the wider picture, it becomes apparent that it would not be at all out of context for someone to use a 'Sphere' to predict the outcome of a duel. Trial by combat was a rare event in late medieval England, and those instances of which we are aware were huge attractions. People flocked from all over the country and even further afield to witness such an

<sup>380</sup> London, Society of Antiquaries Library MS 306, ff. 1r-71v.

<sup>381</sup> London, British Library MS Sloane 1620, ff. 56r-71v.

occasion, which is probably part of the reason why it could be months or years before duels took place.

In contrast to this enthusiasm from the population in general for such events was the general reluctance on the part of those in power to allow a duel to take place. This was a further reason why such events were so long delayed, in the hope that the problem would resolve itself in time. A fight to the death between top nobles could be very undesirable for a king, especially if the 'wrong man' won. As the operation of the 'Sphere' involved adding the number of the weekday and lunar day, the best day could be picked on which to hold the duel on for achieving the desired result. The history of the judicial duel in England must now be examined in order to better understand this link with the 'Sphere'.

#### The history of the judicial duel

In post-Conquest England, three kinds of action could lead to trial by combat. The two earliest were writs of right, either actions over land or criminal cases: effectively private prosecutions. The final category, which is relevant to this thesis, was combat through the Court of Chivalry, which spanned the second half of the fourteenth century. This was a grand, dramatic duel on horseback in armour, usually carried out between nobles. The charges were generally accusations of treason and criminal actions overseas. These duels were overseen by the constable (the holder of the office of vicar-general in arms under the king) and the marshal.<sup>382</sup>

The chivalric battle was a fairly rare occurrence in the later Middle Ages. As previously mentioned, the king (or other arbitrator) was generally keen to avoid a fight to the death, either because it would upset the balance of power between the king's nobles, or because the efficacy of trial by duel was repeatedly questioned. Bartlett points to the essential difference between the duel as a kind of divinatory process, by which God would reveal the truthful party by aiding him to victory, and the duel as merely a way of resolving an affair on one side or the other, with no real indication of which party was right. As well as this, trial by battle was suspect because many people who took part in or witnessed combat regularly would know that a less experienced or physically strong combatant had no chance of prevailing

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<sup>382</sup> M. J. Russell, 'Trial by Battle in the Court of Chivalry', *The Journal of Legal History* 29:3 (2008), p. 335.

against a stronger, more experienced opponent.<sup>383</sup> There were several important reasons why duels were problematic, and it is no surprise that arbitrators, combatants and other interested parties might want to know in advance which of the two men might emerge victorious.

Some slim evidence survives of divination being used in royal circles to predict the outcome of duels. Returning to the reign of Richard II, in September 1398, a complex series of events led to the banishment of two of the king's most powerful nobles. These nobles were Henry Bolingbroke (1466 - 1413), Duke of Hereford, son of John of Gaunt and the future Henry IV, and Thomas Mowbray (c. 1367 – 1399), Earl of Nottingham and Duke of Norfolk. The circumstances that led to their banishment are unclear and both contemporaries and historians differ widely in their interpretation of the situation. The essential story, however, is that in the atmosphere of tension and uncertainty following the arrest and prosecution of the Dukes of Gloucester, Warwick and Arundel in 1397, supposedly for their roles in the uprisings of ten years previously, accusations had flown back and forth between the two magnates which led to Mowbray challenging Bolingbroke to trial by battle in the early part of 1398. It took almost nine months between the gauntlet being thrown down by Mowbray at some point in February 1398, to the decision to go ahead with the battle at a meeting in Bristol on 19 March, to the gathering a month later at Windsor to decide the time and place of the battle, to the battle itself on 16 September at Coventry.

The duel of Bolingbroke and Mowbray attracted a great deal of popular interest from all over Western Europe: men and women were said to have poured in from Scotland, France and even further afield to be present at Coventry on the allocated day. On the day of the duel, Bolingbroke and Mowbray both arrived in the lists and had just begun to fight when Richard ordered that the duel be stopped. The three men then went off and had a discussion for some hours. Richard decided that the duel would no longer take place, but that Bolingbroke would be banished for ten years, and Mowbray for life. Not surprisingly, there was huge outcry at this from those who had turned up to witness what had promised to be the event of the year.

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<sup>383</sup> Robert Bartlett, *Trial by Fire and Water: The Medieval Judicial Ordeal* (Oxford: Clarendon Press, 1986), pp. 114-124.



Nevertheless, the banishment went ahead, setting in motion a chain of events that would lead to Richard's deposition by Bolingbroke the following year.<sup>384</sup>

Several sources give different accounts of Richard's motivations in preventing the duel and banishing both participants, but the most interesting in relation to the present thesis is the explanation provided by Adam of Usk (c. 1352 – 1430), who states that 'The king had been told by a fortune-teller that the Duke of Norfolk would win the contest, which pleased him greatly, since he longed for the downfall of the Duke of Hereford; once they had joined battle, however, it seemed to him that the Duke of Hereford was going to win, so the king ordered the duel to be halted ...'.<sup>385</sup> Adam was a contemporary chronicler of these events, having sat in Parliament in 1397, and in 1399 he was part of the commission which came up with the legal argument for Richard's deposition by Bolingbroke in 1399. There is good reason to believe he had close knowledge of the circumstances of the duel, and he may well have been present on the day. Given Adam's close ties with Bolingbroke, his attitude to Richard was hostile, and so it is no surprise that he accused the king of using occult practices to predict the outcome of the fight. There is no way of knowing if Richard really did use divination to find out who would win the fight, and if so, what methods were used to make the prediction. What is clear, however, is that the use of divination to predict the outcome of a judicial duel between two combatants by a king or another noble was plausible to Adam's readership. Now that the judicial duel has been placed in context, the duels of both Henry of Grosmont and John of Annesley mentioned in London, Society of Antiquaries Library 306 and related manuscripts will now be discussed.

#### The duels of Henry of Grosmont and John of Annesley

Henry of Grosmont, fourth Earl of Leicester and Lancaster was, next to King Edward III, the most powerful man in England. He was an archetypal late medieval chivalric knight, becoming one of Edward's most successful captains in the Hundred Years' War. He founded the Order of the Garter in 1348 and wrote the devotional treatise on spiritual health, the *Livre de seyntz medicines* in 1354. In 1351 he was made duke, and in 1352 he led an expedition to Prussia to join the Teutonic knights on

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<sup>384</sup> Saul, *Richard II*, pp. 395-401.

<sup>385</sup> Adam of Usk, *Chronicle*, in *The Chronicle of Adam of Usk 1377 – 1421* ed. and trans. C. Given-Wilson (Oxford: Clarendon Press, 1997), p. 51.

their expedition against the Lithuanians.<sup>386</sup> Finding that a truce had been reached between the warring parties when he arrived, Henry turned back to England. The chronicler Henry Knighton (d. 1396) and a letter of John II of France (1350 – 1364), state that Henry was ambushed while travelling through Westphalia. He later heard that Otto, Duke of Brunswick had conspired with John II (Henry's mortal enemy) to capture him. Arriving at Cologne on the way back to England Henry accused Otto of attempting to capture him in order to hand him over to John. Henry then challenged Otto to a duel. Otto agreed to this, and John was agreed as the arbitrator. The duel was agreed for 4 December at the Pré-aux-Clercs at Saint-Germain-des-Prés, Paris. John did his best to try and resolve the matter without the need for a duel but negotiations failed. Henry and Otto both appeared and were ready to fight the matter out, but John eventually found a way to call it off while retaining the honour of both parties. It was in John's interests to do so: he was keen to build a good relationship with Henry in the context of the ongoing war with England, and thus he had nothing to gain from seeing him fight to the death.<sup>387</sup> Both Knighton and Geoffrey the Baker (fl. 1326 – 1358), who both record the event, still did their best to make Henry the victor:

In the lists, in the presence of the King of France, the King of Navarre and the Duke of Burgundy and many peers and others of the realm of France, he mounted his horse in a seemly manner, ready in all signs without default to try the combat. And so he remained until his adversary was ready and the voice of the herald and the caution to be had by their common oath for the assurance of his word and to obey the law. On the contrary part the said Otto was scarcely seated upon his horse and was not able decently to put his helmet on or wield his lance – or else he feigned. Perceiving his inability, the King of France took the quarrel into his hands; whereupon Otto was commanded first to leave the lists and so went his way while the duke remained within them. After this, by command of the King of France, Otto swore that he would never after that day accuse the Duke of Lancaster of that article ...<sup>388</sup>

Thus, it seems that this duel did not actually take place, although some records of the incident make out that Henry was at least the moral victor. Therefore, the note next to this 'Sphere' redaction, which implies that Henry was the winner in this duel, is not entirely inaccurate.

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<sup>386</sup> This incident is described in Kenneth Fowler, *The King's Lieutenant: Henry of Grosmont, First Duke of Lancaster 1310-1361* (London: Elek, 1969), pp. 103-108.

<sup>387</sup> Stephen Muhlberger, *Deeds of Arms: Formal Combats in the Late Fourteenth Century* (Highland Village, TX.: The Chivalry Bookshelf, 2005), p. 56.

<sup>388</sup> Galfridi le Baker de Swynebroke, *Chronicon*, ed. E. M. Thompson (Oxford: 1889), pp. 121-122. Quoted in Fowler, *The King's Lieutenant*, p. 109.

Some thirty years after Henry's abortive duel with Otto of Brunswick, on 7 June 1380, John of Annesley, a minor knight from Nottinghamshire, fought a duel against Thomas Caterton. Caterton was the lieutenant of Alan de Buxhill (c. 1323 – 1381) and later constable of the Tower of London. Richard II was arbitrator and the duel took place at Westminster, with Annesley emerging victorious. The duel had taken four years to materialise and the circumstances that led to it are complex.<sup>389</sup> Essentially, in 1375, Caterton was in charge of the resistance to the French siege of St.-Sauveur, an English-held fortress in Normandy. He held the fortress for some months, finally surrendering on 3 July, possibly under orders from John of Gaunt. On 23 or 24 May 1376, Annesley inherited a stake in the barony of St.-Sauveur. This inheritance came through his wife Isabel, who was descended from Sir John Chandos (1320 – 1369). Unhappy at losing this part of his inheritance, on 25 May Annesley accused Caterton of treason in selling St.-Sauveur to the French. Caterton was questioned, but proof could not be found either way, so he was released. It was not until 7 March 1380 that Annesley formally threw down his glove and challenged Caterton to a duel. There was much resistance to this duel taking place, with John of Gaunt possibly trying to protect Caterton, since Caterton had only been acting on his orders. Despite this resistance at the very highest level, the duel eventually took place on 7 June. It was a long, drawn out and exhausting affair, lasting about two hours. Annesley was eventually declared victor when Caterton collapsed, unable to fight any longer. Caterton died from his injuries the next morning. Annesley became a popular hero: a relatively obscure knight who battled the highest ranks of aristocracy to get justice, and who prevailed and proved his case.

It is impossible to know whether or not Henry of Grosmont or John of Annesley, or indeed anyone else, actually used a 'Sphere' to predict the outcome of their duel in advance. What is more likely is that whoever attributed this usage to the 'Sphere', perhaps the scribe of London, Society of Antiquaries Library MS 306, or that of an earlier copy, sat down and worked out the remainder in each instance. They might have added up a total for each man's name, taken the lunar and planetary data for the day on which they fought, and reached a conclusion which proved to give the correct answer for each duel after the event. But this points to a major problem with using the 'Sphere' to predict the outcome of trial by battle, or any other event where one party is pitched against another. Unlike the *Victorious and Vanquished*, it is

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<sup>389</sup> This story is narrated in J. G. Bellamy, 'Sir John de Annesley and the Chandos Inheritance', *Nottingham Medieval Studies* 10 ed. Lewis Thorpe (1966), pp. 94-105.

entirely possible that the 'Sphere' would conclude that both combatants would win (or lose) a duel, as the remainder for each man could appear in the same half. Another problem would arise if two men with the same name were set to fight against each other. Thus, far from providing a clear prediction of the winner, the 'Sphere' could leave the operator in as much doubt as before.

The issue of ambiguity, however, does not seem to have been a problem for the person who added the attribution to this redaction of the 'Sphere'. We cannot possibly hope to reconstruct his workings, since we have no idea of the number of the day of the moon he used for the dates of the trials. One possibility is that he worked out the remainders for Henry and Otto, and the results were fortuitous, indicating that Henry would win and Otto lose, and then he did the same for John and Thomas. Another possibility is that our scribe only took readings for Henry and John, and not for Otto and Thomas, ignoring the possibility of conflicting data. A third possibility is that he did no workings out whatsoever, and simply added the attribution anyway, although this seems unlikely.

Ambiguity, then, was as much of a problem in the prediction of the outcome of a duel as it was in the prediction of life or death. Moreover, for duels, an extra element of uncertainty might be added in that the two parties could both be predicted a win or a loss. However, it is probable that, as with the prognosis of life or death, ambiguity was not a major problem in working out the victor in a duel. Of course, a combatant taking part in the duel would want a definitive, and positive, answer. This would be easy enough to obtain by converting the name into its Latin equivalent if the original outcome was negative and using variations in spellings to give the desired answer. But it was not just combatants that might be interested in prediction. For a king or other authority overseeing events, an ambiguous result might be all the justification needed to call off a duel that was undesirable in the first place. Equally, an ambivalent prediction might be the evidence needed for the duel to go ahead. A duel was usually only resorted to when there was no evidence available either way for guilt or innocence: such an event was usually the outcome of a 'your word against mine' situation. In other words the king was already dealing with an extremely unclear situation, and perhaps the pre-duel consultation of diviners and astrologers was the final way to resolve the situation without a fight. Should the prediction prove inconclusive, perhaps the only way to resolve the situation one way or another was to allow the duel to take place.

Another related use of the 'Sphere' in the prediction of the outcome of a duel was that it involved a lunar and planetary element. This meant that it could be used not only to work out the outcome of a duel, but to work out on which day of the week and of the moon it was best to hold a duel in order to maximise the possibility of victory for one of the parties. Henry of Grosmont and John of Annesley would have had little or no say in when their duels took place; this was a decision for the king and his closest advisers. However, in a situation where a king desired a particular party to win, he might well assign a day of the week and moon which guaranteed the outcome he wanted. As already discussed, it often took months, or even years, to organise a duel from the time the gauntlet was thrown down, and so there was ample chance to plan ahead for the best possible time.

### Conclusion

Literate laypeople in the upper echelons of society took an interest in, and owned, manuscripts containing the 'Sphere of Life and Death'. As far as the gentry were concerned, this was not only a useful, practical device that existed in their commonplace books along with other simple remedies and prognostics, but a status symbol designed to impress similar families who perhaps borrowed their books to copy. The aristocracy, too, took an interest in the 'Sphere'. It was not only useful in predicting whether a sick person would live or die: it could be used to predict the outcome of any situation needing a binary yes/no answer. In the case of the judicial duel, the use of the 'Sphere' to predict such an outcome was tricky, as the 'Sphere' did not pit two values against each other, but could easily predict that both parties would win or lose. As with the literate physician, however, this ambiguity could be useful in assisting the overseer of the duel in deciding to call off or postpone the event. In addition, the lunar and planetary element could help the organisers of such an event plan ahead to hold the duel on a day which promised victory to a particular individual.

## Chapter 8

### The 'Sphere' in manuscripts for scholars and monks

#### Introduction

As well as being a useful device for predicting the outcome of illnesses and duels, manuscript evidence demonstrates that the 'Sphere' was an item included with writings on the curriculum of the Faculty of Arts at Oxford University. It is present in several manuscripts, some of which can be placed at particular college libraries in late medieval England. There are several possible reasons for its inclusion with items of elementary, theoretical astronomy. The first is that there was an intellectual connection between the 'Sphere' and items on the astronomy curriculum: the 'Sphere' was not present in these manuscripts to actually be used, but perhaps as a stark reminder of the serious ends for which prediction could be used. The second is that easy-to-use predictive items might attract poor arts scholars, as it was possible to earn money for providing predictions. A final possible reason for the inclusion of the 'Sphere' in these manuscripts was that it was perhaps a practice tool for conducting very simple calculations, i.e. the number of the day of the moon, and basic addition and division. None of these, of course, is mutually exclusive, and items in manuscripts were not necessarily used for the intended purpose.

Universities were not the only late medieval institutions which produced and possessed manuscripts containing 'Spheres'. As had been the case in the earlier medieval period, monasteries and monks continued to own such manuscripts, although the context had changed from the almost purely computistical nature of the early medieval corpus to much more 'three-dimensional' miscellanies in the later Middle Ages. Three monastic foundations can be positively identified as having owned manuscripts containing 'Spheres': the Benedictine abbeys of Bury St. Edmunds in Suffolk, Cerne in Dorset, and St. Mary's in Coventry. Additionally, two manuscripts can be placed in the ownership of particular monks: the Austin friar John Erghome, and an otherwise-unknown friar named John Holbeche. There are several hypotheses as to the appeal of the 'Sphere' to late medieval monks. The Cerne Abbey manuscript contains many items also on the Arts curriculum at Oxford University, which serves as a neat reminder that the medieval university and the monastery were inextricably linked. Oxford in particular had a strong link with both Franciscan and Augustinian priories from its foundation in the twelfth century. Many

monks were sent to university to study, and all scholars were required to take at least minor orders before embarking on studies in the lower faculty of Arts. Books went back and forth between the university and the monastery, and with them texts such as the 'Sphere of Life and Death'.<sup>390</sup>

The 'Sphere of Life and Death' in manuscripts of the *quadrivium*

Chaucer's *Miller's Tale*, written in the late fourteenth century, introduces a certain Nicholas, a poor arts scholar at Oxford, who turns to astronomy to predict various events, presumably in exchange for much-needed cash:

Whilom ther was dwellynge at Oxenford  
 A riche gnof, that gestes heeld to bord,  
 And of his craft he was a carpenter.  
 With hym ther was dwellynge a poure scoler,  
 Hadde lerned art, but al his fantasye  
 Was turned for to lerne astrologye,  
 And koude a certeyn of conclusiouns,  
 To demen by interrogaciouns,  
 If that men asked hym, in certain houres  
 Whan that men sholde have droghte, or elles shoures,  
 Or if men asked hym what sholde bifalle  
 Of every thyng; I may nat rekene hem alle.<sup>391</sup>

Chaucer had strong ties to Merton College, Oxford. In the fourteenth century, Merton was one of the prime centres of astrological learning in medieval Europe.<sup>392</sup> Chaucer's neighbour in London, Ralph Strode (d. 1387) was a Merton graduate. Furthermore, Lewis (c. 1380 – c. 1403), his son or godson, for whom he wrote his *Treatise on the Astrolabe*, was sent to Oxford.<sup>393</sup> So there some is evidence that Chaucer's fictitious Nicholas is a plausible portrayal of a late fourteenth-century arts scholar at Oxford. It seems that knowledge and possession of predictive methods

<sup>390</sup> On the foundation of Oxford University see *The History of the University of Oxford*, ed. Trevor Aston vol. I, *The Early Oxford Schools* ed. J. I. Catto (Oxford: Oxford University Press, 1984); on the links between Oxford and the religious orders see M. W. Sheehan, 'The Religious Orders 1220-1370', in *ibid.* pp. 193-224.

<sup>391</sup> Geoffrey Chaucer, *The Canterbury Tales*, *The Miller's Tale* lines 1-12, in *The Riverside Chaucer* ed. Larry D. Benson, third edition (Oxford: Oxford University Press, 2008), p. 68.

<sup>392</sup> On astrology at Merton, see John North, *God's Clockmaker: Richard of Wallingford and the Invention of Time* (Edinburgh: A&C Black, 2007), pp. 324-332.

<sup>393</sup> Jenks, 'Astrometeorology', p. 186. On the debate about whether Lewis was Chaucer's son or godson, see G. L. Kittredge, 'Lewis Chaucer or Lewis Clifford?', *Modern Philology* 14:9 (1917), pp. 513-518.

could be an advantage to poor scholars, as the ability to prognosticate offered the potential for financial gain.

Firstly, it is important to point out that the word 'scholar' in this thesis applies to both 'students' and 'masters': those learning, and those teaching. Because the evidence for scholarly interest in the 'Sphere' comes from manuscript context, it is impossible to say whether it was those learning, those teaching, or both, that these manuscripts were used by. As with the evidence for the appeal of the 'Sphere' to physicians (discussed in chapter 6), there are two ways in which the scholarly appeal of this device can be assessed: through what can be ascertained about ownership, and from manuscript context. The manuscripts for scholars of the Arts taken from the corpus disregards those 'Spheres' that appear in codices clearly intended for medical scholars and/or practitioners (discussed in chapter 6), and those placed in an aristocratic context (discussed in Chapter 7). 'Spheres' appear in several manuscripts in the corpus alongside texts on the curriculum of the *quadrivium* (that is, four of the seven Liberal Arts that undergraduates studied: music, geometry, astronomy and arithmetic), as well as texts of Aristotelian philosophy. The most common travelling companion of the 'Sphere' in manuscripts for Arts scholars is John of Sacrobosco's astronomical treatise *De sphaera mundi*, which was the standard text of theoretical astronomy at the medieval university.<sup>394</sup> We must now outline the curriculum of the *quadrivium* and Aristotelian philosophy at medieval Oxbridge, as far as it can be reconstructed, and examine the manuscripts which contain 'Spheres' alongside items on these curricula.<sup>395</sup>

### The quadrivial curriculum

The subjects studied at the Faculty of Arts at the medieval university were closely tied to the ancient Seven Liberal Arts, the basic divisions of learning in Antiquity. The Arts were divided into two halves: the *trivium* (grammar, rhetoric, and logic); which was learned before the *quadrivium*). It is important to note that the modern categories of 'astrology' and 'astronomy' are anachronistic when applied to the Middle Ages. There was a distinction between the theoretical study of the planets and their motions (what would today be called 'astronomy'), and the effect of the

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<sup>394</sup> Olaf Pedersen, 'In Quest of Sacrobosco', *Journal for the History of Astronomy* 16:3 (1985), p. 175.

<sup>395</sup> The term 'Oxbridge' is first noted in 1929, and so I apply it anachronistically to the Middle Ages for reasons of brevity.



heavens on terrestrial life (that which is today called 'astrology'). In the Middle Ages these two disciplines were known as *scientia motus* and *scientia iudiciorum* respectively. It is clear, at least from the Paris curriculum, that the two were developed side by side.<sup>396</sup>

At medieval Oxford, as well as the Liberal Arts, by the thirteenth century, the three Aristotelian philosophies were studied alongside the Liberal Arts. These were metaphysics, natural philosophy and moral philosophy.<sup>397</sup> The Faculty of Arts was the entry point for all scholars: always male, typically aged about fourteen. The average scholar who completed his bachelor's degree would remain in the Faculty for about six years, and would either complete some or all of the *baccalaureate* course before leaving for employment. Alternatively he would go on to lecture at the Arts faculty and pursue studies in one of the higher faculties - medicine, theology or law.

In the absence of any extant curricula for the medieval English university, it is very hard to trace exactly the set texts for any faculty or subject. The standard texts for the Faculty of Arts are particularly difficult to reconstruct. What is known about the texts used by scholars is based on statutes, which were usually only produced to resolve disputes; and educated guesses, based on manuscript evidence and information available about the curricula of Arts at continental universities. The early fourteenth century curriculum of Arts at Oxford has been reconstructed by James Weisheipl, based on the assumption that the curriculum at Oxford was not substantially different from that of Paris and other continental universities, for which far richer records survive.<sup>398</sup> Weisheipl's reconstruction lists the following works on the astronomy curriculum: Ptolemy's *Almagest* and perhaps his *Tetrabiblos* or its abridgement by John of Seville (fl. 1135 – 1153) known as *Centiloquium*; the *Theorica planetarum*; John of Sacrobosco's *De sphaera mundi*; computistical texts, the most popular probably being that of Robert Grosseteste (1175 – 1253), Oxford Master, possibly also Chancellor, and later Bishop of Lincoln; the *Tractatus*

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<sup>396</sup> Richard Lemay, 'The Teaching of Astronomy in Medieval Universities, Principally at Paris in the Fourteenth Century', *Manuscripta* 20:3 (1976), p. 198.

<sup>397</sup> J. A. Weisheipl, 'Science in the Thirteenth Century', in *History of University of Oxford*, vol. I ed. Catto, pp. 461-469.

<sup>398</sup> James A. Weisheipl, 'Curriculum of the Faculty of Arts at Oxford in the early Fourteenth Century', *Mediaeval Studies* 26 (1964), p. 145. On the *quadrivium* and its development see also Weisheipl, 'Science in the Thirteenth Century'; and Pearl Kibre, 'The *Quadrivium* in the Thirteenth Century Universities (with Special Reference to Paris)', in *Arts Libéraux et Philosophie au Moyen Age: Actes du Quatrième Congrès Médiévale, Université de Montréal* (Paris: Institut d'études médiévale, 1969), pp. 175-191.

*quadrantis*, a work of practical astronomy; the *Quadrans novus*; astronomical tables for Oxford, which are abundant in many manuscripts (as discussed in chapter 6); and, after 1328, the *Tractatus de proportionibus*.<sup>399</sup> The arithmetic curriculum consisted of the *Ars metrica* of Boethius (480 – 524 CE) or its summary by the famous Merton astrologer Thomas Bradwardine (d. 1349), the *Algorismus* (usually attributed to John of Sacrobosco), and books VII-X of Euclid's *Elements*.

For geometry, the main text was Euclid's *Elements*. Other items likely to have been on the geometry curriculum were Euclid's *De quantitibus datis*, Jordanus Nemorarius's *De triangulis*, the *Tractatus quadrantis* attributed to Robertus Anglicus (fl. 1271), and the *Tractatus de ponderibus*. Additionally, the *Elementa Jordani de ponderibus*, usually with some commentary, was probably on the curriculum, as well as works on optics and perspective. These might have included Ptolemy's *Optica*, Euclid's *Optica* and *De speculis (Captoptrica)*, *De aspectibus* of Alhazen (965 – 1040), the *Perspectiva* of Roger Bacon (c. 1214 – 1294), and the *Perspectiva communis* of John Pecham (c. 1230 – 1292). There is almost no mention of the study of music at Oxford at all before 1431, when the statutes state that Boethius's *Musica* must be heard one term prior to inception.<sup>400</sup>

In terms of the three philosophies, the curriculum consisted almost entirely of Aristotelian works or summaries of Aristotelian works by later scholars. For natural philosophy there was *Physica*, *De caelo et mundo*, *De generatione et corruptione*, *Metheora*, *De anima*, *Parva naturalia*, and *De animalibus*. For moral philosophy the *Ethica ad Nichomachum*, *Economica*, and *Politica*. Finally, for metaphysics, the likely treatises likely studied include the *Metaphysica* and perhaps the pseudo-Aristotelian *Liber de causis*.<sup>401</sup>

Even less evidence is available for the curriculum of the Arts at Cambridge. However, Cambridge probably emerged as a university as a result of the temporary suspension of Oxford University between 1209-1214/15, due to the hanging of several scholars by the king's men during the interdict of Pope Innocent III (1198 – 1216). This meant that an appeal to the Papacy was out of the question. Scholars

<sup>399</sup> Weisheipl, 'Curriculum of the Faculty of Arts', p. 172.

<sup>400</sup> On music at medieval Oxford see F. LI. Harrison. 'Music at Oxford before 1500', in *History of the University of Oxford* vol. II ed. Catto, pp. 347-372.

<sup>401</sup> Weisheipl, 'Curriculum of the Faculty of Arts', pp. 170-172.

migrated to several centres, most likely including Cambridge, Reading, and Paris.<sup>402</sup> That Cambridge was founded by Oxford masters and scholars is not evidence that the curriculum of the Arts was exactly the same, though it is likely to have contained much of the same material. No scholarly work has been carried out on the likely curriculum for the quadrivium at Cambridge, and therefore for the purposes of this study, the assumption is that the set texts for the study of the Arts at Cambridge did not differ widely from those of Oxford. Now that we have established a likely quadrivium curriculum for these universities, the evidence for the presence of the 'Sphere' in such manuscripts will be examined.

### The manuscript evidence

One of the most striking examples of manuscripts for scholars of the Arts containing 'Spheres' is London, British Library MS Royal 12 E XXV, produced at Oxford c. 1300. Using strong internal evidence, Neil Ker confidently placed the production of this manuscript at Merton College, Oxford.<sup>403</sup> Several treatises within it are found in other medieval manuscripts which can also be placed in the library of medieval Merton. These treatises include a work on Aristotelian physics beginning 'Compilaciones intitulate Mihi cordi, colecte per mag. Iohannem de Sicca Villa de principiis nature' ff. 32r-59v, and the letter of Robert Kilwardby, Archbishop of Canterbury (1273 - 1278) to Peter of Confluentia, Archbishop of Corinth (1268 - 1278) on the Oxford errors ff. 115r-120r, which were directed specifically at Merton College. There is also a copy of Archbishop Kilwardby's 1276 decrees against Merton College f. 2r. This codex is a small book, presumably designed to be portable, which mainly contains texts from the curriculum of the faculty of arts, for example *questiones* on Aristotelian physics ff. 4r-25r; commentaries on Aristotle's *Parva Naturalia* ff. 113r-114v; the *Tractatus quadrantis* ff. 142r-145r; and *De rerum mensuracione*, a work on elementary trigonometry ff. 152r-155v. There are three 'Sphere' diagrams accompanied by four texts ff. 164v-165v (figures 33:a-c and appendices I:22-25), placed between the *Liber Hermetis*, ff. 160v-164r, an important work of Hermetic astrology and a text on the aspects of the moon and planets ff. 165v-166r. While this manuscript cannot be assigned any particular scribe or owner during the fourteenth century, a contents list in a fifteenth-century hand f. 1r is

<sup>402</sup> Alan B. Cobban, *The Medieval English Universities: Oxford and Cambridge to c. 1500* (Berkeley and Aldershot: University of California Press and Scolar Press, 1988), pp. 44-45.

<sup>403</sup> Ker, 'Oxford College Libraries', p. 298.

accompanied by the name 'Richard Philyp'.<sup>404</sup> Emden lists three people of that name who studied at medieval Oxford. One studied arts for four years, and was granted a standing of three years in civil law on 27 March 1462. Another supplicated for his B.A. on 16 November 1451. The other was perhaps at Oxford in 1439.<sup>405</sup> Any one of these men could have owned or used this manuscript during the fifteenth century.

Another manuscript that can be confidently linked to Oxford is Cambridge, Trinity College Library MS O.2.5. This was produced in the mid-fourteenth century, as evidenced both by the hand, and the inclusion of tables for eclipses of the moon for Oxford ff. 43r-46r. This manuscript was (probably spuriously) attributed to Robert de Barry, rector of Begelly in Pembrokeshire, Wales, on account of a copy of a deed of 1270 on the second flyleaf and again at f. 251r. The problem with the attribution to Robert is that the manuscript is in a mid-fourteenth century hand and so unless this Robert was very old when he produced it, it is unlikely that it belonged to him. The confusion arose when a sixteenth-century scribe saw the deed, and linked Robert to the production of the book, writing 'The name of this work is the miscellany of Robert de Barry, once rector of Begelly, who lived in the year 1270'.<sup>406</sup> This manuscript contains 'Spheres' ff. 8r (text only), 10r, 10v-11r and 192v (figures 19:a--e and appendices I:27-31), as well as John of Sacrobosco's *De sphaera mundi* ff. 1r-14r and Alexander de Villa Dei's *Massa compoti* ff. 13r-22r. This manuscript can be linked to Oxford not only by the presence of texts on the curriculum of the Arts, but still more by the inclusion of tables for eclipses of the moon for Oxford in 1330 ff. 43r-46r, beginning 'Ista tabula docet de eclipsi lune etc. et incipiebat a.d. m<sup>mo</sup> ccc<sup>mo</sup>xxx<sup>o</sup> et durabat usque ad a.d. m<sup>mo</sup> ccc<sup>mo</sup> octoges. sexto, fact' in uniuersitate Oxon. anno predicto'.<sup>407</sup> As the James catalogue points out, similar tables covering the same period were produced by some of Merton's most celebrated men, including William Rede (c. 1315 - 1385), later Bishop of Chichester and John Ashenden (d. c. 1368), a prolific astrologer.<sup>408</sup>

Yet further manuscripts in the corpus containing 'Spheres' can be linked to scholars of the *quadrivium*. Oxford, Bodleian Library MS Fairfax 27, a composite manuscript

<sup>404</sup> London, British Library MS Royal 12 E XXV, f. 1r.

<sup>405</sup> A. B. Emden, *A Biographical Register of the University of Oxford to A. D. 1500*, vol. III (Oxford: Clarendon Press, 1957), p. 1479.

<sup>406</sup> 'Nomen totius huius libri Miscellanea Roberti de Barry quondam rector de Begely qui vixit sub an. Dom. 1270'. Cambridge, Trinity College Library MS O.2.5, second flyleaf.

<sup>407</sup> Cambridge Trinity College MS O.2.5, ff. 85r-90v.

<sup>408</sup> James, *The Western Manuscripts in Trinity*, vol. III, p. 86.

in three parts, contains a 'Sphere' in Anglo-Norman in the third section, f. 69r (figure 16 and appendix I:12). This section was composed in the first half of the fourteenth century, all in the same hand. Alexander of Villa Dei's *Algorismus* is present ff. 27r-37v; Sacrobosco's *De sphaera* ff. 59r-66r; the *Theorica Planetarum* of Gerard of Cremona (c. 1114 – 1187) ff. 81r-84r; and the *Quadrans vetus* of John of Montpellier ff. 88r-91v.<sup>409</sup>

That the university association of these manuscripts containing 'Spheres' is not coincidental may be suggested by the fact that it was not just in England that the 'Sphere' found its way into the manuscripts of scholars. In or around 1315, Pierre Roger, then a scholar at Paris and future Pope Clement VI (1342 – 1352), copied into his commonplace book an elaborate version of the 'Sphere' entitled *Circulus vite et mortis*, now Vatican City, BAV Borghese 247, f. 21v. Clement's extant books show that he was interested in a wide range of topics, especially medicine, an interest he retained throughout his pontificate. Clement ruled during the Black Death, and commissioned the medical faculty at the University of Paris to produce their 1348 report into the causes of the pestilence which ascribed it to an unfortunate conjunction of Mars, Jupiter, and Saturn.<sup>410</sup> That Borghese 247 survives in the Vatican archives is fairly clear evidence that Clement brought the book with him to Avignon when he was elected Pope. Clement's discovery of the 'Sphere' shows that he was able to access this device at Paris. Furthermore, as in England, the 'Sphere' was accessible not just to those who were studying in the faculty of medicine.<sup>411</sup>

The 'Sphere', then, is present in several manuscripts that can be linked to the *quadrivium* at the medieval English university. The question that must now be addressed is why. The first possible reason for the inclusion of the 'Sphere' with texts in such codices is that at some point (or at several different points) a connection was made between the subject matter, diagrams, attributions and historical associations of the 'Sphere' on the one hand, and items of astronomy, geometry, and arithmetic on the other. As discussed earlier in this chapter, the most frequent travelling companion of the 'Sphere' in late medieval English manuscripts

<sup>409</sup> Oxford, Bodleian Library MS Fairfax 27, ff. 27r-91v.

<sup>410</sup> *The Report of the Paris Medical Faculty, October 1348*, ed. R. Hoeniger, *Der Schwarze Tod* (Berlin: 1882), pp. 152-6. Translated in *The Black Death* ed. Horrox, pp. 158-163.

<sup>411</sup> Vatican, Biblioteca Apostolica Vaticana MS Borghese 247, f. 21v. Noted in Boudet, *Entre science et nigromance*, p. 43.

is John of Sacrobosco's *Tractatus de Sphaera*, written c. 1230 at Paris. *De sphaera* is about 9,000 words long, and consists of four major sections. The first deals with the general structure of the universe; the second with the circles of the celestial sphere. Phenomena caused by the daily rotation of the heavens are dealt with in section three, and planetary motion and the explanation of eclipses in section four. This is definitely a work of astronomy as opposed to astrology: it sets out the motions of the heavens but does not at any point mention of the effect of the stars on human beings, or the science of prediction with recourse to the heavens. Simply put, there is nothing prognostic in this work. It is a treatise of theoretical astronomy.

Thus, the 'Sphere' has very little in common with Sacrobosco's treatise in terms of content or purpose, apart from the lunar and planetary element. Perhaps, then, it is mostly on account of its circular shape and its title, which usually contains the Latin form of the word 'Sphere', that these two works initially became associated. As discussed in chapter 2, the more often than not round shape of the 'Sphere' diagram, in part, led to the initial attraction between the 'Sphere' and computistical tables in the early Middle Ages. Moreover, as a symbol of the round universe, the 'Sphere' became associated in some instances with the round T-O maps and wind diagrams that were common throughout the medieval period.

Apart from the link between diagrams and astronomical content, an equally valid argument can be based on an attraction between the numerical element of the 'Sphere' and items on the curriculum of arithmetic. Additionally, the device's usually round shape could link it to geometry treatises: Euclid's *Elements*, for example, frequently contained geometrical drawings in the margins. Perhaps, then, the 'Sphere' merely existed in these quadrivial manuscripts, perhaps as a kind of *memento mori*, a stark reminder to scholars of the *quadrivium* of the most solemn of aims for which prediction could be used: life or death. Furthermore, the 'Sphere' would have been a particularly pertinent inclusion to any of the Arts scholars who went on to study at the Faculty of Medicine.

Another possible reason for the inclusion of the 'Sphere' in codices of quadrivial material was for it to be used as a serious prognostic. As discussed in chapter 6, professional physicians who earned their living solely or mainly from the practice of medicine made up the thin end of the wedge of medieval medical practitioners. Therefore, it is perfectly plausible that a variety of people engaged in the art of prognosis, including scholars in the Arts faculty. The prediction of life or death was

not the only way in which the 'Sphere' in the context of the Arts could have been used as a serious prognostic. It is also possible that like Chaucer's *poure scoler*, Nicholas, a scholar might use prediction to lucrative ends, perhaps to identify a thief or find stolen goods or hidden treasure (see the case of John Betson in the Epilogue), either for members of the university or townspeople. This could be particularly profitable, as the practitioner could demand a share of the booty if and when it was found. But how much did the average scholar need to earn money by this method?

As Alan Cobban has pointed out, the relative poverty of medieval scholars has been exaggerated. Most of the evidence for the existence of the poverty of scholars comes from letters written home asking for further funds. But these letters are exercises in rhetoric, and should be read with caution. A scholar might have been temporarily low on funds because of one of the recurrent shortages of coin in the later Middle Ages, or simply be waiting for his next transfer from his family. In relative terms, even the poorest medieval scholar was probably not living in poverty, even if by today's standards he endured much more uncomfortable conditions.<sup>412</sup> However, it is still safe to say that medieval scholars could probably never have enough money, and so anything they could do to earn more, such as engage in prognostic activities for townspeople, was likely to be appealing.

A final, and perhaps the most plausible, potential reason for the appearance of the 'Sphere' in manuscripts for scholars of the Arts was that it was intended as a practice-tool. Those scholars studying works such as *De sphaera* were more than likely beginners, or near-beginners, at astronomy. They were also possibly new to arithmetic and geometry. To operate the 'Sphere' requires extremely basic calculation of the number of the day of the moon and simple addition and division to reach an answer. Thus, perhaps it was included in these books as a way of putting basic astronomy and arithmetic into practice. Most of the treatises on the curriculum of astronomy were decidedly theoretical in tone, and so the 'Sphere' perhaps fulfilled a role in being a device that could be used for practical aims.

If the 'Sphere' was intended as a device for practice or a classroom activity, then it is worth comparing it with *rithmomachia*. *Rithmomachia* was the only game permitted (even actively encouraged) at medieval Oxford before the fifteenth

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<sup>412</sup> Cobban, *Medieval English Universities*, pp. 301-02.

century. This game improved the player's arithmetic skill, since one needed to know Boethian ratios, as well as the whole range of figurate numbers.<sup>413</sup> For this reason, scholars were encouraged to play *rithmomachia* outside of the lecture room. Obviously, the 'Sphere' required much less arithmetical skill to operate than *rithmomachia*, and, as discussed in chapter 5, the 'Sphere' was illicit in the eyes of canon law. Therefore, unlike *rithmomachia* it is unlikely it would ever have been officially approved for use at the university.

### The 'Sphere' and monks

As well as circulating with tracts on the quadrivial curriculum intended for scholars at the Faculty of Arts, the 'Sphere' is also present in late medieval monastic manuscripts of English provenance. There are two ways of working out monastic ownership: from those manuscripts that are assignable to specific monasteries (either directly or indirectly), and from those to certain scribes within particular orders. Monastic manuscripts often list saints' days or other information associated with a particular institution. Three codices containing 'Spheres' in the manuscript corpus can be confidently assigned to specific Benedictine abbeys: Bury St. Edmunds in Suffolk, Cerne Abbey in Dorset, and St. Mary's Priory, Coventry. Additionally, two manuscripts were authored (or at least owned by) individual monks: John Erghome, member of the Austin order at York, who bequeathed his manuscript to his monastery, and John Holbeche, a Franciscan who may have had links to Cambridge.

### The manuscript evidence

Cambridge, Gonville and Caius College Library MS 225/240 was produced in the second half of the thirteenth century at the priory of Bury St. Edmunds. The abbey was one of the largest and richest in medieval England, and some 270 manuscripts from its scriptorium at Bury survive. Just over a half of these are now housed in Cambridge libraries.<sup>414</sup> Paleographical analysis has shown that a scribe named by modern scholars as 'A' contributed to a number of miscellanies that originated at Bury, including Gonville and Caius 225/240. This small, portable manuscript is in

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<sup>413</sup> See Charles Burnett, 'The Instruments which are the Proper Delights of the *Quadrivium*: Rhythmomachy and Chess in the Teaching of Arithmetic in Twelfth-Century England', *Viator* 28, (1997), pp. 175-201.

<sup>414</sup> Antonia Gransden, 'Some Manuscripts from Bury St. Edmunds', p. 228.



several good, neat hands, with a scribe called 'A' dominating. It was still housed in the monastery library in the mid-fourteenth century when Henry de Kirkestede compiled his library catalogue, giving the manuscript the shelf mark V.12 and listing 29 items. A 'Sphere' appears, in the hand of 'A', in a short prognostic section p. 143 (figures 8:a-b and appendix I:6), directly following a lunary pp. 142-143. Various philosophical sayings follow, before a January prognostic p. 165 (discussed in chapter 1).

It can be hypothesised that, as the main hand present in the volume, Scribe 'A' was the manuscript's original owner who took decisions over what should be included within it.<sup>415</sup> If that was the case, it can be said that he was a man of diverse intellectual interests. From this manuscript alone, it seems that he was greatly concerned with the works of several classical authors, as evidenced by the *sententiae* from Plautus (254 – 184 BCE) pp. 5-13. The extracts from Plautus are significant, because they were not widely known in England until later in the Middle Ages.<sup>416</sup> The manuscript also houses *sententiae* from Seneca (4 BCE – 65 CE) pp. 13-18. Additionally, the last four items in the manuscript are works and proverbs by Seneca and Ovid (43 BCE – c. 18 CE) pp. 232-284. 'A' also took a keen interest in more recent works of philosophy, as testified by the inclusion of the *Secunda philosophia* of William of Conches (c. 1090 – c. 1154) pp. 19-125; and excerpts from John of Salisbury's *Policraticus* pp. 180-232.<sup>417</sup>

The identity of 'A' cannot be known with any certainty. Rodney Thomson tentatively identified him as Robert Russel, Prior of Bury (1258 – 1280), because the datable hands in the book are roughly contemporaneous with his time in office. Additionally, many of the works also appear in London, British Library MS Harley 1005, a collection of the abbey's chronicles and liturgical customs, which Thomson believed was in the prior's possession by the end of the fourteenth century at the latest.<sup>418</sup> Whatever the identity of 'A', he felt that a prognostic section containing a 'Sphere', a lunary and January prognostic to be an appropriate insertion among tracts of ancient and medieval philosophy and theology.

<sup>415</sup> Gransden, 'Some Manuscripts from Bury St. Edmunds', p. 234.

<sup>416</sup> Gransden, 'Some Manuscripts from Bury St. Edmunds', p. 234.

<sup>417</sup> Cambridge, Gonville and Caius College Library MS 225/240, pp. 5-284.

<sup>418</sup> Gransden, 'Some Manuscripts from Bury St. Edmunds', p. 234.

Roughly contemporaneous with Cambridge, Gonville and Caius College Library 225/240 is a manuscript which now survives as two separate codices. M. R. James identified London, British Library MS Egerton 843 (figures 6:a-b and appendix I:4) as the missing section from Cambridge, Trinity College MS O.2.45 (figure 36 and appendix I:32). The original manuscript was produced in the later part of the thirteenth century (with several additions in later hands) at Cerne Abbey, Dorset. The evidence adduced by James for production at Cerne is convincing: in Trinity O.2.45 the calendar pp. 82-93 contains the feast day for the ninth-century St. Eadwold, Cerne's patron saint, on p. 89,<sup>419</sup> and there are several verses that refer to Cerne on p. 11, for example:

Ei est hebraicum verbum sed cerno latinum  
 Ex hiis compositum discite cernelium  
 Ei deus est cuncti cerno novere latini  
 Signat cernelium sic bene cerno deum.

This manuscript's *terminus post quem*, identified by James, is 1248, as St. Edmund of Canterbury (Edmund Rich, c. 1180 – 1240), canonised in that year, is mentioned in the calendar listing saints' days, p. 91.<sup>420</sup>

It is impossible to know the original placing of the leaves of Egerton 843 within Trinity O.2.45, but it seems that the original manuscript was still circulating as a whole in the fifteenth century. 'Spheres' with near-identical texts are present in Trinity O.2.45 p. 1 and Egerton 843 ff. 31v-32r. Some of the works in both codices link this manuscript to the university as well as the monastery. Firstly, the manuscript housed several works on the quadrivial curriculum, such as Sacrobosco's *De sphaera* in Egerton 843 ff. 1r-12r; Alexander of Villa Dei's *Algorismus* in Trinity O.2.45 pp. 23-30; and a computistical tract in Trinity O.2.45 pp. 125-179. Secondly, Trinity O.2.5 contains several games, verses, and stories that might well have been read, recited or sung by scholars for entertainment. These include boards for draughts, Nine Men's Morris, and chess pp. 2-3; *The Usurer's Pater Noster* in Anglo-Norman pp. 324-330; the *Carmen contra Northfolciam* pp. 340-342 (a verse describing the unsavoury characteristics of those from Norfolk),<sup>421</sup>

<sup>419</sup> On St. Eadwold, see Tom Licence, 'Goscelin of St Bertin and the Life of Eadwold of Cerne', *The Journal of Medieval Latin* 16 (2006), pp. 182-207.

<sup>420</sup> James, *College*, vol. III, p. 151. On this manuscript see also Cecilia Panti, 'Robert Grosseteste's Early Cosmology', in *Editing Robert Grosseteste* ed. Joseph Ward Goering and Evelyn Anne Mackie (Toronto: University of Toronto Press, 2003), pp. 135-166.

<sup>421</sup> The *Carmen contra Northfolciam* is edited in Thomas Wright, *Early Mysteries and other Latin Poems of the Twelfth and Thirteenth Centuries* (London: Nichols and Son, 1838), pp. 93-98.

and *De monacho infortunato*, a satire on a monk pp. 340-344. However, Trinity O.2.45 also contains non-quadrivial works, including prayers in Anglo-Norman, English and Latin p. 4, and proverbs pp. 351-356.<sup>422</sup>

Over one hundred years after the production of these two manuscripts, a medical compendium was in the ownership of John of Greenborough, infirmarer at St. Mary's Priory in Coventry. We know nothing else about this John, although Tony Hunt notes that a Franciscan named Henry Greneburgh is recorded as having been at the Coventry convent between 1375 and 1408.<sup>423</sup> This is extant as the first section (ff. 1-187) of London, British Library MS Royal 12 G IV. This large medical compendium was written in three bouts during the fourteenth century.<sup>424</sup> The first part, written circa 1300, consists of the aforementioned Gilbertus Anglicus's *Compendium medicinae* f. 5r, followed by tracts on natural philosophy and astrology. An alphabetical list of herbs on f. 134r forms the second part. The third part, written at the end of the fourteenth century, consists of tracts on physiognomy f. 139v, an exhaustive compilation of remedies for all disorders from the head downwards with the incipit *De ponderibus et mensuris medicinalibus cum medicinarum qualitate* on f. 140v. This reference to weights and measures implies that this was more than a simple collection of remedies. A treatise on the plague follows on f. 158r, astrological tables f. 160r, and various tracts from f. 160v onwards, including a 'Sphere' (figure 22a and appendix I:33), complete this section of the manuscript. As discussed in chapter 4, from a note at the end of the codex, it is known that this part of the manuscript circulated as a whole from the end of the fourteenth century. In the same hand as the 'Sphere' and its surrounding material, Brother John Greenborough, infirmarer at the church of Coventry, says that he obtained 'this book which is called Gilbertinus'. This is a reference to the first work in the book, Gilbertus Anglicus's *Compendium*.<sup>425</sup> So, while written in three parts over the course of a century, we can safely say that these items circulated together as a whole from about 1400 onwards.

<sup>422</sup> Cambridge, Trinity College Library MS O.2.45, pp. 2-356; and London, British Library MS Egerton 843, ff. 1r-32r.

<sup>423</sup> Tony Hunt, *Popular Medicine in Thirteenth-Century England* (Cambridge: D. S. Brewer, 1990), p. 34.

<sup>424</sup> George F. Warner and Julius P. Gilson, *Catalogue of Western Manuscripts in the Old Royal and King's Collections*, vol. II (London: British Museum, 1921), p. 69-71.

<sup>425</sup> London, British Library MS Royal 12 G IV, ff. 5r-187v.

Gilbert's encyclopedia of medicine was probably written in the 1250s,<sup>426</sup> and its author is generally considered the first notable English writer on medicine.<sup>427</sup> While his medicine was grounded in Hippocratic-Galenic humoral and complexional theory, it was nevertheless a simplification of learned medicine, and when it was translated into Middle English in the fifteenth century, its potential for use by a variety of practitioners spread out even further.<sup>428</sup> His encyclopedia was very popular, surviving in at least 38 Latin manuscripts and 12 Middle English. Furthermore, Gilbert's reputation as a physician is demonstrated in description of the learned doctor in the prologue to the *Canterbury Tales* by Geoffrey Chaucer (1343 – 1400), along with the likes of Hippocrates, Averroes (1126 – 1198) and Galen:

Wel knew he the olde Esculapius,  
And Deyscorides, and eek Rufus,  
Oldd Ypocras, Haly, and Galyen  
Serapion, Razis, and Avycen,  
Averrois, Damascien, and Constantyn,  
Bernard, and Gatesden, and Gilbertyn.<sup>429</sup>

However, that Gilbert was also seen as an empiric of sorts, and admired by some of those who carried out such practices is clear from the second half of John Greenborough's note at the end of Royal 12 G IV: 'Many believe the four new things written above to be true by practice, but many physicians do not wish to approve them, because many of them are ignorant of practice, and spout forth empty words into the wind'.<sup>430</sup> Was this John a university educated physician? It is impossible to say with any certainty. In his discussion of medical receipts in medieval England, Hunt places John's compendium in the same tradition as those of Gilbert and John of Gaddesden (c. 1280 – 1361), both of whom were university-trained.<sup>431</sup> Thus, it is just as likely as not that John was a medical graduate himself.

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<sup>426</sup> Gilbert's *Compendium* has traditionally been dated to before c. 1250. On this revised dating see McVaugh, 'Gilbert the Englishman', pp. 295-324.

<sup>427</sup> Faye Marie Getz, *Healing and Society in Medieval England: A Middle English Translation of the Pharmaceutical Writings of Gilbertus Anglicus* (Madison: The University of Wisconsin Press, 1991), p. xi.

<sup>428</sup> On Gilbert's treatise in Middle English see Getz, *Healing and Society*.

<sup>429</sup> Geoffrey Chaucer, *The Canterbury Tales, General Prologue* lines 431-436, in *The Riverside Chaucer* ed. Larry D. Benson, third edition (Oxford: Oxford University Press, 2008), p. 30.

<sup>430</sup> London, British Library MS Royal 12 G IV, f. 187v.

<sup>431</sup> Hunt, *Popular Medicine*, pp. 24-43.

Another manuscript roughly contemporaneous with that of John of Greenborough is a now-missing manuscript that belonged to John Erghome, master regent and prior of the Austin priory of York and graduate of Oxford. This was bequeathed as part of his library of books to the priory on his death. This manuscript contained a 'Sphere', which we know about thanks to a library catalogue first drawn up in 1372, now Dublin, Trinity College Library MS 359 ff. 5r-48v.<sup>432</sup> Not long after this Erghome donated some 220-230 volumes to the library and these were added to the catalogue.<sup>433</sup> Erghome's manuscript contained mainly tracts of astronomy, including the *Liber Florum* of Albumasar (787 – 886), works on the quadrant, and a treatise on the cylinder, as well as geomancies and a chiromancy.<sup>434</sup> Given its contents, it is worth postulating that Erghome might have written, acquired, or used this manuscript during his time as a scholar at Oxford.

In the fifteenth century, a manuscript similar in content to the aforementioned London, British Library MS Royal 12 G IV is Cambridge, Trinity College Library MS O.9.10. This codex is written throughout in the same hand by a fifteenth-century Franciscan scribe named Johannes Holbeche, as evidenced by the colophon on f. 66v. It includes a 'Sphere' in Anglo-Norman f. 75v (figure 18 and appendix I:14), and is full of medical texts, from Nicholas of Salerno's *Antidotarium* at ff. 27r-49r, to a section on herbals on ff. 89r-108r, to the *Cura capitis* of the Franciscan physician William Holm at ff. 114r-119r. Holm is thought to have been active around 1415,<sup>435</sup> but no further details of his life are known. Nothing can be established about the scribe Holbeche's identity. The only John Holbek recorded in Emden's prosopography of Oxford and Cambridge scholars was ordained as subdeacon in the Augustinian Abbey at Oseney, Oxford, in 1473, which rules him out as this scribe, who was clearly a Franciscan.<sup>436</sup> Similarly, the only John Holbak listed in Talbot and Hammond was a barber-surgeon made a freeman of the City of Canterbury in 1398 – which again rules out our Franciscan scribe.<sup>437</sup> There is also evidence that this manuscript circulated in Cambridge. An inscription after the

<sup>432</sup> Humphreys, *The Friars' Libraries*, p. 11.

<sup>433</sup> K. W. Humphreys, 'The Library of John Erghome and Personal Libraries of the Fourteenth Century in England', in *A Medieval Miscellany in Honour of Professor John le Patourel* ed. R. L. Thomson [Proceedings of the Leeds Philosophical and Literary Society, Literary and Historical Section XVIII:1] (Leeds: Leeds Philosophical and Literary Society, 1982), p. 116.

<sup>434</sup> Humphreys, *The Friars' Libraries*, p. 96.

<sup>435</sup> Peter Murray Jones, 'Reading Medicine in Tudor Cambridge', in *The History of Medical Education in Britain* ed. Vivian Nutton and Roy Porter (Amsterdam and Atlanta, Rodopi, 1995), p. 154.

<sup>436</sup> Emden, *Biographical Register of Oxford to 1500*, vol. II, p. 945.

<sup>437</sup> Talbot and Hammond, *Medical Practitioners*, p. 157.

‘Remedium contra pestilenciam’ on the third flyleaf (probably in a later hand) reads ‘Finitur receptus cathedralis ingressus cuiusdam Baccalarii in medicinis Universitatis Cantabrigie contra epidemiam. Amen. Whalsgrave’.<sup>438</sup> Neither Emden, nor Talbot and Hammond or Getz’s supplement, list a Whalsgrave or any variation in their respective prosopographies of medieval Cambridge scholars or medieval English medical practitioners,<sup>439</sup> and so what, if any, circulation this manuscript enjoyed at Cambridge cannot be ascertained.

These five manuscripts, then, are rich and varied in content, and demonstrate that monastic interest in the ‘Sphere’ was not merely a phenomenon of the early Middle Ages. And the ‘Sphere’ is also present in monastic manuscripts of continental provenance. For example, London, British Library MS Arundel 339 was produced at the Benedictine monastery at Kastl, Bavaria in the first half of the thirteenth century, as evidenced by a list of abbots of that monastery f. 151v.<sup>440</sup> This miscellany, comparable to the Cerne manuscript in content, is mostly in the same hand with a few additions by other scribes. The codex contains a number of treatises on a variety of subjects, including with several works relating to the *quadrivium*. For example, texts of astronomy are dotted through the volume, like the computistical treatise ff. 34v-36r. There are two geometrical works ff. 49r-68r; and music treatises ff. 108v-109v. Arithmetic is represented by several texts ff. 1v-34v. There are also works of medicine, including *De mensura fistularum* (on fistulae) ff. 109v-110r and *Signae leprae*, in a later hand, ff. 119r. Two ‘Spheres’ are present ff. 68r-v, in the manuscript’s main hand.<sup>441</sup>

#### Monastic interest in the ‘Sphere’

The ‘Sphere of Life and Death’, then, is included in at least five manuscripts of late medieval English provenance that can be linked to specific abbeys or monks. There are several possible reasons for this. The first relates to the deathbed rituals of the Benedictine order; and the second to Kieckhefer’s very useful classification of occult

<sup>438</sup> Cambridge, Trinity College Library MS O.9.10.

<sup>439</sup> Emden, *Biographical Register of Cambridge to 1500*; Talbot and Hammond, *Medical Practitioners*; Faye Getz, ‘Medical Practitioners in Medieval England’, *Social History of Medicine* 13 (1990), pp. 245-283.

<sup>440</sup> Wrongly dated to the fourteenth century in the British Library catalogue. *Catalogue of Manuscripts in the British Museum, New Series*, vol. I, part 1, *The Arundel Manuscripts* (London: British Museum, 1834), pp. 101-102. Dated to the first half of the thirteenth century in e.g. Eastwood and Graßhoff, *Planetary Diagrams*, p. 62.

<sup>441</sup> London, British Library MS Arundel 339, ff. 1v-151v.

practitioners: the 'clerical underworld' (defined in the Introduction). Turning first to the deathbed rituals of the Benedictine order, Ulrich of Cluny (1029 -1093) and Bernard of Cluny (early twelfth century) were two authors of widely-circulating Benedictine customaries. Both of these refer to the presence of servants in monastic infirmaries who were well-trained in predicting the imminent death of a monk. When the time came, all the brethren of the monastery were alerted by these servants clapping boards together, and were required to dash to the bedside of the dying monk. At Cluny, the presence at the deathbed of a brother was compulsory for every monk who could possibly leave what he was doing, and the importance of this ritual is illustrated by the fact that, in the Cluniac rules, the only other time that a monk was permitted to run was in the case of fire. A complex ritual of purification and supplication was to be carried out at the dying brother's bedside involving the whole monastic community.<sup>442</sup>

Given the utmost importance of the accurate prediction of time of death in Benedictine customaries of the central Middle Ages, it is of no surprise that a variety of prognostic material, including the 'Sphere', is present in many manuscripts produced in Benedictine monasteries in the following centuries. The 'Sphere' was particularly useful for a quick prediction of death which would be vital in the summoning of fellow monks, perhaps from quite a distance, to attend the bedside. This is not to say that the 'Sphere' was the only predictive method found in such manuscripts: as we saw, Cambridge, Gonville and Caius College Library MS 225/240 also contains a lunary and January prognostic. But the possibility of a quick, personalised prediction was provided by the 'Sphere'.<sup>443</sup>

As well as for the most pious of reasons, i.e. the ability to accurately predict time to death, monks might also be attracted to the 'Sphere' for purposes of a decidedly more illicit nature. In discussing the disproportionate number of manuscripts of late medieval ritual magic that were produced by monks or in monastic ownership, Kieckhefer coined the phrase 'the clerical underworld' (defined in the Introduction). On first inspection, it is perhaps puzzling that monks, theoretically the model of piety, might possess and use dubious texts of magic and divination. On closer examination, however, it becomes clear that such men were in the ideal position to do so. Firstly, they were literate, able to read and/or write Latin to a decent

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<sup>442</sup> Paxton, '*Signa Mortifera*', pp. 631-632.

<sup>443</sup> For a detailed account of the Benedictine death ritual see Paxton, 'Remembering the Dead'.

standard. They also may have had access to a number of books in a monastic library, from which to copy and disseminate the texts they found. Finally, monks might want access to occult knowledge in order to gain the sorts of things that monastic rules, in theory, forbade them. Monks were governed above all by strict rules, especially in contrast with the perceived chivalric lifestyle of upper class males.

Not surprisingly, many of the occult procedures in the fifteenth-century necromancer's manual analysed by Kieckhefer – Munich, Bavarian State Library Clm 849 – are to win the love of a woman or conjure a magical horse to ride.<sup>444</sup> Fighting and sex were, after all, the precise activities that monks, in contrast to knights, were forbidden to take part in. Clearly, the 'Sphere' is not an item of ritual magic, and had been present in monastic manuscripts since at least the very early ninth century. But that is not to say that its occult nature was not attractive to monks for the same reasons as ritual magic texts. The power that the ability to predict gave someone might well have been attractive alongside the obvious practical uses of the 'Sphere'. And the claim of the 'Sphere' to predict the outcome of a duel or battle perhaps links it in with those items of ritual magic owned by monks that dealt with the pursuance of aristocratic activities.<sup>445</sup> However, as the work of Page demonstrates, it may be that monks owned (and perhaps used) illicit texts such as the 'Sphere' to test their usefulness and orthodoxy – applying a healthy dose of scepticism.<sup>446</sup> Monks may also have felt safe from the perils of dabbling in the occult, as their vocational status meant they were equipped to read and use magic and divination appropriately.<sup>447</sup> Page further points out that the monastery was perhaps the perfect place to study occult texts, as it was a sheltered, protected environment.<sup>448</sup>

Thus, monks might have found prognostics such as the 'Sphere' attractive and useful for very pious reasons: that is, the quick prediction of death so that appropriate bedside purification rituals could be carried out with the entire monastic

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<sup>444</sup> Munich, Bavarian State Library Clm 849. Kieckhefer, *Forbidden Rites*, pp. 42-58 and 69-95.

<sup>445</sup> On the connection between learning and masculinity in texts of late medieval and early modern ritual magic, see Frank Klaassen, 'Learning and Masculinity in Manuscripts of Ritual Magic of the Later Middle Ages and Renaissance', *The Sixteenth Century Journal* 38:1 (2007), pp. 49-76.

<sup>446</sup> Page, *Magic in the Cloister*, p. 29.

<sup>447</sup> Page, *Magic in the Cloister*, p. 25.

<sup>448</sup> Page, *Magic in the Cloister*, p. 128.



community present. However, the 'Sphere' might also have been appealing to such men for decidedly non-pious aims. Its occult nature, and usually round diagram, its power to predict temporal matters such as the outcome of a duel or battle paradoxically might have held great interest for those in monastic communities. The ability to predict imbued the owner of such predictive devices with power: something which ordinary monks, by definition, felt they did not have. Monks may also have taken an empirical interest in texts of the occult, and felt it was their moral duty to test such devices for utility and orthodoxy.

### Conclusion

It is impossible to give one single answer as to why the 'Sphere' was of interest to scholars of the *quadriuvium*. It may have been intended as a solemn reminder of the importance of prediction, a lucrative prognostic, or a method of practising basic astronomy and arithmetic. Of course, these potential uses are not mutually exclusive. A 'Sphere' may have been copied into a manuscript for a particular reason, for example as a serious prognostic, but could end up being used as a diversionary game. As for those 'Spheres' which were present in books produced in late medieval English Benedictine monasteries, the reasons for the possession of a 'Sphere' could be for either very orthodox, or decidedly unorthodox, aims. This is a neat illustration of the borderline status of the 'Sphere' as an item that was at once a licit prognostic and at the same time a dubious item of divination, defying categorisation as wholly one or the other.

## Chapter 9

### The 'Sphere' c. 1500 – c. 1700

#### Introduction

On 17 September, 1666, Sir Robert Holt of Warwickshire heard the deposition of William Hopkins against Edward Dolphin. Rumours had been flying around about a Protestant plot to replace King Charles II (1660 – 1685) with Rupert, Prince Palatine of the Rhine (1619 – 1682):

... heard Edw. Dolphin of Camphill, near Birmingham, say that the Papists would be uppermost for a time; that he had Pythagoras' wheel, and could tell when an untruth was spoken, and cared not if he were hanged, so he could serve the country; that the King and Duke of York are papists, and the King has been at mass underground within a fortnight, and that a royal G. would rule over us. Asked if he meant George Monk; he said no, but Prince Rupert, a German prince, in whose cause all would venture lives and fortunes. He confirmed what he had said before the man of the house, and said he should ride on the examinant's horse within this half year.<sup>449</sup>

We must, of course, be sceptical about the veracity of the details in Hopkins's deposition. Whether or not Dolphin actually possessed a 'Sphere', this incident demonstrates that it was at least known for its predictive abilities in Restoration England.<sup>450</sup>

This chapter will look beyond the end of the fifteenth century and examine the fortune of the 'Sphere' in England during the period c. 1500 – c. 1700. It aims to address several questions. What effect, if any, did the English Reformation and rise of witchcraft prosecutions have on condemnations of and justifications for the use of the 'Sphere'? What was the effect of print culture on the text and context of the 'Sphere'? Was the 'Sphere' as popular as it had been in the fifteenth century? What rationales were produced explaining onomancy or condoning its use? Can the kinds of people who owned, copied or used the 'Sphere' in early modern England be identified?

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<sup>449</sup> *Calendar of State Papers*, Domestic Series, Charles II 1666-1667, ed. Mary Anne Everett Green (London: Longman, Green, Longman, Roberts and Green, 1864), p. 134.

<sup>450</sup> This is discussed in John F. Ede, *History of Wednesbury* (Wednesbury: Wednesbury Corp., 1962), p. 87.

The chapter will begin with an analysis of the manuscript tradition of the 'Sphere'. There are two broad categories of English manuscripts containing 'Spheres' which circulated c. 1500 – c. 1700: medieval manuscripts in later ownership, and manuscripts produced in this period itself. What is the manuscript context of these post-1500 'Spheres'? Did they circulate with the same kinds of texts as they had in the late medieval period? And were they composed for and owned by the same kinds of people as they had been in the Middle Ages: physicians, aristocrats, and scholars? Or did ownership and readership change? After an analysis of the manuscript tradition in this period, this chapter will move on and look at the 'Sphere' in print.

After an examination of the 'Sphere' in manuscripts and print, evidence for the philosophical and legal background of onomancy will be analysed. This evidence is taken from two sources: justifications and condemnations, both of which were produced by multiple authors post-1500, compared to the almost complete dearth for the medieval period of such texts. The legal status of the 'Sphere' in practice will then be discussed, using the only known prosecution in early modern England for the use of a 'Sphere'. Taking all of this evidence together: 'Spheres' in manuscripts and print, rationales for onomancy, and condemnations of this art, both change and continuity is present between the late medieval and early modern form and fortune of this device.

#### The 'Sphere' in the manuscript tradition

There are seemingly far fewer surviving manuscripts of English provenance containing the 'Sphere' from the period c. 1500 – c. 1700 than from the later Middle Ages. How can this apparent drop in numbers be accounted for? Firstly, it is important to point out that this survey of early modern manuscripts has not been as comprehensive as that for the late medieval corpus. If, however, it is hypothesised that fewer manuscripts containing the 'Sphere' really were produced, then several reasons can be postulated. Firstly, with the Reformation, which began in 1536, and the advent of witchcraft trials and the production of sophisticated works of demonology in the late fifteenth and sixteenth centuries, it is quite possible that many more books containing occult material such as the 'Sphere' were destroyed. Secondly, parchment continued to go rapidly out of use during the early modern period, and given the relative perishability of paper, it is possible that many more manuscripts containing 'Spheres' from this time have simply ceased to exist.

Thirdly, the 'Sphere' did make it into the printed tradition by 1591 at the very latest and perhaps circulated largely in that medium from that time onwards. Finally, perhaps interest in such devices simply declined. First, however, those 'Spheres' in medieval manuscripts which can be assigned to particular owners in the post-1500 period will be examined.

London, British Library MS Royal 17 A XXXII, an astrological miscellany created in the fifteenth century, has a now-partially erased 'Sphere' text in Middle English on its flyleaves, now f. 3r (appendix I:11). A number of further onomantic methods directly follow ff. 3v-5r. This 'onomantic section' is written in a different hand to any of the other tracts in the manuscript, which passed through a number of named owners through the fifteenth and into the sixteenth century. In 1560, it was in the hands of a Henry Dyneley, who left inscriptions ff. 5r, 89r and 119r.<sup>451</sup> Several pieces of evidence link this manuscript, and several others, to Henry Dyneley (1524 - 1598), of Charlton, Worcestershire. Dyneley was Sheriff of Worcester in 1553 and later 1568. The same Dyneley also owned London, Wellcome Collection MS 5262, and left a similar inscription f. 12r. This manuscript is an early fifteenth century recipe collection copied in the Worcestershire area, which is more evidence for the linking of this Dyneley with the Sheriff of Worcester.<sup>452</sup>

However, it is another fifteenth-century manuscript containing a 'Sphere', now Oxford, Bodleian Library MS Rawlinson C 506, which really proves beyond doubt that the Henry Dyneley who owned this set of manuscripts was the Sheriff of Worcester. From the evidence from a very revealing receipt ff. 122v-123r, it seems that Dyneley was a practising physician as well as a sheriff. After a receipt for medicine for the megrims (i.e. low spirits), he writes 'provid by me Henry Dyngley of Charleton yn þe parrische of Chrophthorne, wryten by me le 14 daye of Auguste, anno Domini 1547, I being of þe age 32'. There is a 'Sphere' ff. 15v-16r, hidden among a plethora of popular and learned medical tracts, receipts and recipes (figures 37:a-b). These include learned works such as a tract on the four humours by Peter of Salerno f. 2v, Roger of Salerno's *Cirurgia* f. 170r, and Trotula's *Practica* ff. 146v-147v. As well as these scholastic tracts, this manuscript also contains practical medical works, such as various charms, for example that on f. 16v; a

<sup>451</sup> London, British Library MS Royal 17 A XXXII, ff. 3r, 5, 89r and 119r.

<sup>452</sup> London, Wellcome Library MS 5262, f. 12r. On date and provenance, see Richard Palmer, *Catalogue of Western Manuscripts in the Wellcome Library for the History and Understanding of Medicine: Western Manuscripts 5120-6244* (London: Wellcome Trust, Wellcome Library for the History and Understanding of Medicine, 1999), pp. 60-61.

conjunction for raising spirits f. 39r; and food recipes f. 205r.<sup>453</sup> Of course, Dyneley may not have taken any interest at all in the ‘Spheres’ present in these volumes, but all the same, London, British Library Royal MS 17 A XXXII and Oxford, Bodleian Library MS Rawlinson C 506 are both good evidence for the continued ownership of the ‘Sphere’ in gentry and medical circles in the sixteenth century.

Particular medieval manuscripts can also be placed at specific institutions in the period post-1500. As seen in chapter 8, a section of London, British Library MS Sloane 1620 (ff. 56r-71v), produced around 1500, can be confidently placed at University College, Oxford in the sixteenth century. This contains multiple ‘Spheres’ and accompanying texts ff. 65r-66v and 70v-71r. The poor quality of the paper and small writing renders it impossible to decipher any more of this inscription, but it clearly refers to a Master Bell of University College, and perhaps an individual named Shirkeld possessed this manuscript at some point in the sixteenth century.<sup>454</sup> This manuscript is tentative evidence, then, for the continued interest of those in university circles in the post-1500 period.

As well as three medieval manuscripts owned in the early modern era, there are some eight known manuscripts produced in post-1500 England containing the ‘Sphere’. The majority of ‘Spheres’ in these manuscripts are in the vernacular, with one exception in Latin. First impressions indicate a decline in the number of manuscripts containing the ‘Sphere’ produced in England c. 1500 – c. 1700. What can be known about the owners, or in some cases authors, of these manuscripts will now be outlined.

Two manuscripts, London British Library MS Sloane 3580A and 3580B, originally a single volume, were produced c. 1580 by Thomas Potter, a chemist and alchemist. George R. Keiser offers some clues as to Potter’s identity: from the scholarly tone of his annotations it is clear that he was a man of learning who had read many manuscripts. Furthermore, Keiser postulates that he could be the same Thomas

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<sup>453</sup> Oxford, Bodleian Library MS Rawlinson C 506, ff. 15v-205r.

<sup>454</sup> Emden contains several references to men named ‘Bell’, ‘Belle’, ‘Beal’ and ‘Beale’ in his pre- and post-1500 prosopographies of Oxford University, but there is no evidence to place any of these men as master at University College in the sixteenth century. Emden, *Biographical Register of Oxford to 1500*, vol. I, pp. 160-162; A. B. Emden, *A Biographical Register of the University of Oxford, A.D. 1501-1540* (Oxford: Clarendon Press, 1974), pp. 38-40. No individual with the name ‘Shirkeld’ is named in either the pre- or post-1500 prosopographies. There is no reference to anyone who might be either of these men, with variant spellings, in the *Oxford Dictionary of National Biography*, or in Robin Darwall-Smith, *A History of University College, Oxford* (Oxford: Oxford University Press, 2008).

Potter identified by Emden as a Benedictine monk ordained on 19 December 1534, finished six years of study in logic, philosophy and theology in 1539.<sup>455</sup> This manuscript, containing both handwritten and printed treatises, mainly consists of alchemical tracts, such as the *Compound of Alchymiae* by George Ripley (d. c. 1490) ff. 140r-166r, the *Tabula Smaragdina Hermetis Trismegisti* ff. 23v-31r, and *The whole worcke of the composytion of the stone philosophicall or greate Elixir* ff. 214v-220r. The only non-alchemical works in the entire volume are the *Golden Table of Pythagoras* in MS 3580A ff. 3r-6r, and another 'Sphere' ff. 234r-v. The *Golden Table*, as discussed in chapter 3, is a 'catch-all' onomantic text, designed to bring together some of the divergent 'Sphere' texts into one treatise. The separate 'Sphere' ff. 234r-v has the stated aim of the prediction of life or death, but adds at the end, 'and this Spere dothe not only serve for lyffe & deathe, but also for all thyng that you dost desire to knowe'.<sup>456</sup> Potter's 'Spheres' then, it seems, were meant to be regarded with solemnity, given their manuscript context.

Not all copyists of 'Spheres' in early modern England, however, took them as such. A 'Sphere' in English is present in London, British Library MS Sloane 3690, ff. 96r-v. This manuscript has been identified by Deborah Harkness as one of the prison notebooks of Clement Draper (c. 1541 - 1620), merchant and amateur scientist, who spent more than 13 years imprisoned in the King's Bench in London from the early 1580s until at least 1593.<sup>457</sup> Born to a wealthy gentry family in Leicestershire, Draper became a well-connected London merchant, marrying Elizabeth Garton (d. c. 1623), member of a prosperous landholding family with connections to the iron industry. This personal connection with metalworking and mining perhaps inspired Draper's interest in metallurgical projects and, later, alchemy. Incarcerated for debt in 1581 or 1582, Draper spent much of his time in prison compiling notebooks containing a plethora of texts on alchemy, the natural sciences, and medicine. Harkness identified some sixteen of these books written by Draper when in prison, all of which are now housed in the British Library except for a sole volume in the Ashmole collection at the Bodleian.<sup>458</sup> She concludes that Draper's sources of

<sup>455</sup> George R. Keiser, 'Preserving the Heritage: Middle English Verse Treatises in Early Modern Manuscripts', in *Mystical Metal of Gold: Essays on Alchemy and Renaissance Culture* ed. Stanton J. Linden (New York: AMS, 2007), pp. 192-193.

<sup>456</sup> London, British Library MS Sloane 3580A, ff. 23v-234v.

<sup>457</sup> Deborah E. Harkness, 'Accounting for Science: How a Merchant Kept His Books in Elizabethan London', in *The Self-Perception of Early Modern Capitalists* ed. Margaret C. Jacob and Catherine Secretan (Basingstoke: Palgrave Macmillan, 2008), p. 217.

<sup>458</sup> On Draper and his prison notebooks, see Deborah Harkness, *The Jewel House: Elizabethan London and the Scientific Revolution* (New Haven and London: Yale University Press, 2007), pp. 181-209.

information were both 'formal' and 'informal'. His formal sources were the books and treatises that he copied and annotated. The informal sources that Draper accessed were the anecdotal experiments and recipes of his fellow inmates. Luckily, Draper often named the inmate who had provided him with a particular nugget of information, giving a fascinating insight into the knowledge that circulated among the men imprisoned in the King's Bench in Elizabethan London.

The 'Sphere' in Draper's notebook is entitled 'Pithagoras his Wheele'. The text is revealing. Firstly, this 'Sphere' makes no mention of the prediction of life or death. It merely states:

First chuse what number you like at the sudden, then that the first letter of the querrente name, Christian name, and the number of that letter as you fynde it in this wheele with the nomber sett downe heare for that daye of the weeke, and the planet of that daye with his number. Then put all your numbers in one, then divide by 30. The remaynder is the number you must seeke in the wheele, except 30 remayne, then that 30 is the same. And if you fynde that nomber which is your remaynant in the over halfe of your wheele, your question shall spede well, but in the neyther halfe it is noght.<sup>459</sup>

Draper's 'Wheele', then, is more of a fortune-telling item than a serious prognostic to be used to predict the outcome of an illness. That the onomancy is begun by taking the first number that the operator thinks of, and only adding the number of the first letter of the name, is a telling sign. Furthermore, the kinds of question that this device can answer are not listed: this text merely refers to a 'question'. The recreational aspect is further highlighted by the next sentences in the accompanying text:

Take heede that you use not this rewle any waye as a matter of waght or sownde creadit, but according to arte and for a recreation to passe the tyme merrylie with, and in all your dowinges hearing or in any other rule bothe at begynnyng and endyng be sewer you neyther dowe nor thinke any thinge but that all sola deo sit honor et gloria.<sup>460</sup>

The reference to God's glory at the end of the text is a stark reminder of the illicit nature of divination and the importance of leading a pious life.

The notebooks of both Thomas Potter and Clement Draper show continuity from the later Middle Ages in the kinds of people who copied the 'Sphere' into manuscripts post-1500. If the Potter in Emden is the same as the scribe and owner of this

<sup>459</sup> London, British Library MS Sloane 3690, f. 96r-v.

<sup>460</sup> London, British Library MS Sloane 3690, f. 96v.

manuscript, then he was a Benedictine monk and university graduate, as well as an alchemist. Draper was a member of the gentry, a keen amateur scientist and metallurgist. However, the manuscript tradition post-1500 also demonstrates change. Draper's 'Sphere' was clearly not intended as a serious prognostic.

It was not only in England that manuscripts containing 'Spheres' were produced in the period c. 1500 – c. 1700. A striking continental example is Venice, Biblioteca Nazionale Marciana MS lat. VI.261 (3648), produced in Italy in the second half of the sixteenth century. According to the description by Valentinelli written in 1871, this manuscript houses a work entitled *Liber divinationum seu sortium*, which contains several astrological and divinatory tracts, including three 'Spheres' ff. 20v-27v. These are entitled the *Rota Apollonii et Pythagorae*, the *Rota Bedae presbyterii de divinatione mortis et vitae*, and the *Sphaera Pythagorae*. The second section of the manuscript ff. 28r-39r consists of two tracts on the philosophy of numbers: the *Liber de numerorum potentia*, and the *Ars mirifica Pythagorae*.<sup>461</sup> Therefore, this manuscript consists of two cohesive sections: the art, followed by the justification. The accompanying justification is significant, since unlike the late medieval 'Sphere', this example is accompanied by a justification for the practice of this art. Such justifications will be discussed later in this chapter, but first it is necessary to examine the 'Sphere' in the printed tradition.

#### The 'Sphere of Life and Death' in the printed tradition

The 'Sphere' in the printed tradition, as in the manuscript context of early modern England, was branching out on two divergent paths. On the one hand, it was included in the 'coffee-table' books of the landed gentry, often given titles such as 'The Wheel of Fortune'. This version introduced a new operative element: the starting point is a number thought of at random, rather than the numerical sum of the querent's name, as in Draper's manuscript. In another quite different tradition, it is present in the books of the most educated physicians and intellectuals at Oxford university, and operates in the same way as it had in the Middle Ages.

The 'Sphere' is present in the printed tradition in England from 1591 at the latest, when Francis Sparry translated the geomancy of Christopher Cattan, a Swiss

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<sup>461</sup> Venice, Biblioteca Nazionale Marciana MS lat. VI. 261 (2648), ff. 20v-39r. Description in Joseph Valentinelli, *Bibliotheca Manuscripta ad S. Marci Venetiarum. Codices MSS. Latini* vol. IV (Venice: Ex typographia commercii, 1871), p. 289.



astrologer, into English. About Cattan and Sparry nothing more is known, although a Francis Sparry is known to have imported bound books to England in 1557.<sup>462</sup> His dates, however, are perhaps a little early for our translator. Cattan's geomancy was first published in French in 1571,<sup>463</sup> and the title of the English version is *The Geomancie of Maister Christopher Cattan Gentleman. A Booke, no lesse pleasant and recreative, then of a wittie invention, to knowe all thinges, past, present, and to come, whereunto is annexed the Wheele of Pythagoras*. This title is revealing for several reasons. Firstly, it is clear that the appendix containing the 'Sphere' and several other onomancies at the end of the book was not seen as part of the geomantic work, but a separate entity. Secondly, the purpose of the book is made clear: it is mainly intended for recreation and entertainment.

The onomantic section at the end of the English version of the work begins p. 226 with an elaborate version of the *Victorious and Vanquished*, before the 'Wheel of Pythagoras' is introduced p. 237. The most important thing to note about this printed version of the 'Sphere' is that its basic rules of operation have changed from those of ancient and medieval versions. As with Clement Draper's 'Sphere', instead of taking the numbers that correspond to the letters of a name, the person making the inquiry is asked to pick a number at random, stating 'you must first of all choose a number, what you list at your Discretion, as 10, 15, 03, 02 or anie other more or lesse'.<sup>464</sup> One then adds the number of the day: the equivalent of adding the number of the planetary weekday, found listed after the diagram: and then adds the number correlating to the first letter of the enquirer's name, found in the diagram. This is then divided by 30, and the remainder sought in the centre of the diagram. As usual, the top hemisphere signifies good fortune, and the bottom hemisphere, bad. Another procedure which can be done using the 'Wheel of Pythagoras' is:

... if ye woulde know whether ye shall enjoy your lover or not, take the number of the first Letter of your name, the number of the Planet, and of the day of the weeke: and al these numbers ye shall put together, and then divide them by 30, as ye did before, and take your remainder, and seeke in the wheele and you shal find it, and then if it be in the upper halfe you shall have your request, and if it be in the nether parte, it is contrary. And thus you may do of al other things which you would know: you must consider that the

<sup>462</sup> Peter W. M. Blayney, *The Stationers' Company and the Printers of London, 1501-1557*, vol. II (Cambridge: Cambridge University Press, 2013), pp. 769, 809, and 822-823.

<sup>463</sup> *La géomancie du Seigneur Christofe Cattan, Gentilhomme genevois: Livre non moins plaisant et récréatif, que d'ingénieuse invention, pour sçavoir toutes choses présentes, passées et advenir, avec la Roue de Pythagoras* (Paris: G. Gilles, 1571).

<sup>464</sup> *The Geomancie of Maister Christopher Cattan Gentleman*, trans. Francis Sparry (London: John Wolfe, 1591), p. 237.

numbers in the wheele passe not 30 as we shall finde them beginning with 1 2 3 and 4 and so consequently to 30 as in the same Wheele you may see.<sup>465</sup>

Cattan's version of the 'Sphere', then, is intended for pleasant diversion, to find answers to questions about matters such as love.

The next known English example of the 'Sphere' in print is Samuel Stranghopes's *Book of Knowledge* first published in 1675,<sup>466</sup> with an expanded edition in 1696. About Stranghopes himself we know absolutely nothing, and his name may well be a *nom de plume*. The name 'Stranghopes' seems apt as a compiler of a fortune-telling compendium, and there are no other known references to him.<sup>467</sup> Unfortunately, his three page dedication to the reader does not reveal anything about him. The 1696 edition is divided into four parts: the first on astrology, the second on onomancy and other short prognostics, the third on simple medicines, and the fourth on animal husbandry. This book was clearly intended as a useful commonplace book for householders, perhaps of the lower gentry. Stranghopes makes it clear in his preface to the reader that this book was intended first and foremost as a basic introduction to astrology:

...I have here bestowed my pains only to collect a short and brief treatise, both delightful and profitable, which may be well termed the first Rudiments of Astrology, having viewed several books of several Authors, who all have pretended to lay a foundation for the meanest capacity to build on, building then all mere counterfeits, and not true coyn, not worth the perusing of an ingenious Reader, I thought here to undeceive the simple, and to encourage the industrious as to follow the Rule and Method of the ancients; first to lay a foundation before I build, and as I find the acceptance this shall have in the world, it will encourage me to proceed, to make known, more of that noble Science which the world is so ignorant of.<sup>468</sup>

The second section of the work contains the 'Wheel of Fortune' p. 46, according to Stranghopes 'first composed by Rufus Aienus'. This is most probably a spurious attribution, and more than likely a Roman-sounding name made up by the author to add authority.<sup>469</sup> It contains '...the Resolution of all manner of Questions, both for

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<sup>465</sup> *ibid.* p. 238.

<sup>466</sup> Samuel Stranghopes, *A Book of Knowledge: In Three Parts* (London: George Purslowe, 1675).

<sup>467</sup> There is no reference to a Samuel Stranghopes in the *Oxford Dictionary of National Biography*.

<sup>468</sup> Samuel Stranghopes, *A Book of Knowledge in Four Parts* (London: J. Deacon, 1696), pp. A3-A4.

<sup>469</sup> There is no reference to a 'Rufus Aienus' in *The Oxford Classical Dictionary* ed. Simon Hornblower, Anthony Spawforth, and Esther Eidinow, fourth edition (Oxford: OUP, 2012).

Delight and Satisfaction of the Reader'.<sup>470</sup> So this device is intended for both entertainment and as a prognostic. This decorated 'Wheel' diagram consists of two circles in a figure-of-eight formation, with Lady Justice holding sword and scales represented at the top. Two workers reap the corn out of which the top circle of the figure is made. The bottom circle is formed of the body of a snake-like creature. The top wheel's numbers predictably signify good fortune, the bottom, bad. Strangehopes then provides an extensive list of all the matters that can be resolved by this wheel: questions of life or death, affluence or poverty, inheritance, lost property, marriage, weather, journeys, etc. The device operates in exactly the same way as that in Cattan's fortune-telling book: the operator selects a number at random, adds the day of the week, and the number correlating to the letter of the first name, and divides by thirty. The 'Wheel' is followed by onomancies to work out astrological information for information about a client, and an explanation of the 'Golden Number'.<sup>471</sup>

Closely related to Strangehopes's *Book of Knowledge* in content is *The True Fortune-Teller or, Guide to Knowledge. Discovering the whole Art of Chiromancy, Physiognomy, Metoposcopy and Astrology* by a compiler known only as J. S., published in 1686<sup>472</sup> and again in 1698. The author's introduction outlines his belief that the natural signs on the bodies of men and creatures were intended to be interpreted:

...the Great Creator of the Glorious Universe, has so ordered it, that he has Ingraven, as it were, Mysterious Characters upon every Creature; whereby those, whose Understandings are assisted by Divine Knowledge, may unfold future things; and on Men and Women, more especially, his Peculiar Signet, or Sacred Mark, is imprinted, to stir them up to seek Wisdom and Knowledge, that so they may pry into the obscure or hidden Mysteries of Fate, the which being known, they may avoid eminent Dangers, or observe the better to use those Blessings and Advantages to God's Glory.<sup>473</sup>

Chapter 36 of this work is entitled 'Of the Pythagorean Wheel, commonly called the Wheel of Fortune, and what is to be observed thereby as to good or bad Fortune relating to man or woman'. The author includes four different sets of instructions on

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<sup>470</sup> *ibid.*, p. 46.

<sup>471</sup> *ibid.* pp. 50-52.

<sup>472</sup> J. S., *The True Fortune-Teller or, Guide to Knowledge. Discovering the whole Art of Chiromancy, Physiognomy, Metoposcopy and Astrology* (London: printed for John Harris, 1686).

<sup>473</sup> J. S., *The True Fortune-Teller or, Guide to Knowledge. Discovering the whole Art of Chiromancy, Physiognomy, Metoposcopy and Astrology* (London: printed for E. Tracy, 1698), p. 1.

how to operate the device. The first method is identical to that of Cattan and Strangehopes, except that the divisor in this case is three, and the outcome rests on whether the remainder is odd or even:

Would you know the result of any Question? Chuse a number not exceeding thirty, that you best fancy, to that add the number or the day, and the first Letters of your Name, which probably may stand Figures, divide the number by three, and if the result be even, then will what you demand come to pass, but if odd, not, or at least not without vexation and delay.<sup>474</sup>

The second method of operation is to work out whether the questioner will be lucky in love, by use of the first letters of both Christian and surnames:

Would you know whether you shall enjoy the party you love, in this case take the first Letters of your Christian and Surnames, add thereto the number of the Planet, and day of the Week, all which in one conjunct number divide by thirty, and if it fall out in the upper part of the Wheel, you will have your wish, but if it happen in the lower part you will find many crosses, if not altogether miscarry therein.<sup>475</sup>

The third method of operation is again almost identical to the process outlined in the books of Cattan and Strangehopes, but with the addition of the number of the day of the month instead of that of the weekday:

Chuse a number according to your pleasure, add to it the day of the Month, then the Letters of your Name, which united in one sum divide by thirty, which number if it happen to be 154 so divided, the overplus will be 14, which number being found in the upper part of the Wheel, promises success, but if in the lower part, renders it doubtful, if not altogether impossible to bring to pass.<sup>476</sup>

The final way of working the 'Pythagorean Wheel' is akin to the *Victorious and Vanquished*:

Another way there is by Alphasier in case of Victory, or who shall overcome, which is by comparing the Names of the parties, and subtracting [sic] the numbers of signification, adding to each the number three, and in such cases the day of the Month, and the Planet, being the additional, if the three or thirteen remain the Supernumerary to one of the parties, he may expect success, and so in other cases relating to love, business, friendship, fidelity,

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<sup>474</sup> *ibid.* pp. 160-61.

<sup>475</sup> *ibid.* p. 161.

<sup>476</sup> *ibid.* p. 161.

riches, truth, falshood, prosperity and adversity, honesty, dishonesty, malice, evil intention, fraud, or the like, too tedious herein to be inserted.<sup>477</sup>

The author, then, either discovered or constructed several different ways to operate his 'Pythagorean Wheel', perhaps so that if an answer obtained from one method of operation was not satisfactory, then an operator could gain a more suitable answer from operation by a different method. J.S., or the version he was copying, also introduced an important element of doubt into the outcomes given, and an 'escape clause': '...he may expect success...', '...but if in the lower part, renders it doubtful, if not altogether impossible to bring to pass', 'but if odd, not, or at least not without vexation and delay'. This is an acknowledgement that the outcomes given might not always be straightforward, and is very different from the textual accompaniments of the late medieval devices. These are usually emphatically binary in tone, but, as already discussed, prone to ambivalence once manipulated.

Despite the varied textual accompaniments of the 'Spheres' in these three books, it is clear that this device in this particular printed tradition was aimed at a narrower group of people than were those in the late medieval manuscript corpus. Sparry (in translating Cattan), Strangehopes, and J. S. were all writing by implication for literate laypeople: but almost certainly not scholars, clerics, or literate physicians. The people at whom these tomes were aimed were householders: people who were interested in learning and having to hand the basics of astrology and forms of divination, simple medical recipes, dates of local fairs, methods of weather prediction and other useful information. However, as Louise Hill Curth points out in her work on early modern almanacs (comparable in content to the fortune-telling books discussed above), identifying the actual ownership and readership of this sort of literature is much harder, as very little direct evidence survives.<sup>478</sup>

A 'Sphere' also circulated in a very different world from the fortune telling books of Cattan, Strangehopes, and J.S. In 1617, Robert Fludd's *Utriusque Cosmi maioris salicet et minoris metaphysica* was first published in Oppenheim.<sup>479</sup> The son of Sir Thomas Fludd (d. 1607), an MP, Robert was a physician and occult writer. He

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<sup>477</sup> *ibid.* pp. 161-62.

<sup>478</sup> On ownership and readership of almanacs see Louise Hill Curth, *English Almanacs, Astrology and Popular Medicine 1550 - 1700* (Manchester: Manchester University Press, 2007), pp. 79-101. On early modern almanacs see also Bernard Capp, *Astrology and the Popular Press: English Almanacs 1500 – 1800* (London: Faber and Faber, 1979).

<sup>479</sup> Robert Fludd, *Utriusque cosmi maioris scilicet et minoris metaphysica, physica atque technica historia: in duo volumina secundum cosmi differentiam divisa* (Oppenheim: Johan Theodori de Bry, 1617).

studied at St. John's College, Oxford, where he was introduced to the occult circles active there at the time. After graduating from Oxford with an MA, Fludd spent several years abroad, when he was possibly exposed to hermeticism and Paracelsianism, before returning to Oxford to study medicine at Christ Church. He was admitted to the College of Physicians in 1606, despite being suspected of a number of things including Paracelsianism and anti-Galenism. Reportedly a successful healer, it seems Fludd's medical practice was largely orthodox, despite his interest in the occult. Fludd was the Englishman most active in the debate about Rosicrucianism which began in 1614. It seems that the Neoplatonism of the Rosicrucians was in line with Fludd's own beliefs, which explains his interest in their philosophy.<sup>480</sup> His interest in Neoplatonism goes some way to explaining Fludd's inclusion of a 'Sphere' in what was arguably his most important work.

*Utriusque cosmi* is an account of the microcosm and macrocosm, which sets out Fludd's belief in both a Christian view of world history and his opposition to the Aristotelian natural philosophy and Galenic medical theory of the university. The real originality of this work was Fludd's union of the Neoplatonism of the Renaissance scholars Marsilio Ficino (1433 –1499) and Pico della Mirandola (1463 – 1494) with the alchemical account of the creation rooted in a word-for-word interpretation of Genesis.<sup>481</sup> Tract II, part I, book 9 is entitled *De Arithmetica Pythagorica*, and consists of ten short chapters on different varieties of onomancy. Chapter 1 gives the method for calculating a birth planet by using the onomantic alphabet, chapter 2 for finding out the birth sign. Chapter 3 states that by establishing his or her 'Pythagorean number' one can work out if someone might win a duel, or the outcome of an illness. Chapter 4 deals with calculating life or death, chapter 5 with property and estates, 6 with travel and 7 with future prosperity or adversity. Chapter 8 describes, and gives an illustration of, the *Sphera Pythagora* and Chapter 9 the *Sphera Platonis & Apuleii*. Chapter 10 rounds off the section with a justification for the practice of onomancy.<sup>482</sup> The 'Sphere', with its use of numbers and an astrological element, fitted perfectly into Fludd's work of serious Neoplatonic and alchemical cosmology.

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<sup>480</sup> Ian Maclean, 'Fludd, Robert (bap. 1574, d. 1637)', *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2004); online edn, Jan 2008 <<http://0-www.oxforddnb.com.catalogue.urls.lon.ac.uk/view/article/9776>>, accessed 15 Feb 2014. On Fludd and his works, see also William H. Huffman, *Robert Fludd and the End of the Renaissance* (London and New York: Routledge, 1988).

<sup>481</sup> Maclean, 'Fludd, Robert'.

<sup>482</sup> Fludd, *Utriusque cosmi*, pp. 147-152.

Thus, the 'Sphere' in both the manuscript and printed traditions, in the period c. 1500 – c. 1700, can be divided into two categories. Firstly, there were the 'Spheres' copied, composed and owned by serious 'scientists': alchemists, occultists, and physicians such as Henry Dyneley, Thomas Potter, and Robert Fludd. Secondly, there were those 'Spheres' intended for the entertainment of literate laypeople, such as the printed fortune-telling books of Cattan, Strangehopes, and J.S., and the notebook of Clement Draper. The second category shows a departure from the medieval tradition: while the use of a 'Sphere' for entertainment was always a possibility in the period c. 1200 – c. 1500, it was never explicitly offered. The 'Sphere', then, was beginning to be used as a recreational item, while at the same time being an item of serious science. The philosophical background behind the practice of onomancy must now be addressed, as it holds some clues as to the continued significance of the 'Sphere' in the period post-1500.

#### The philosophical background

At the very beginning of the sixteenth century, the German philosopher, magician and occultist Heinrich Cornelius Agrippa composed his *De occulta philosophia* in three books.<sup>483</sup> The influence of Agrippa's work on the occult philosophy of the Renaissance cannot be exaggerated: this text circulated widely in manuscript form before being printed in 1533, with an English translation appearing in 1651. This ambitious tome, written when Agrippa was in his early twenties, was an attempt to revive the tradition of ritual magic which had, he thought, degenerated in the period which Agrippa and his fellow Renaissance intellectuals had labelled the 'Dark Ages'. In *De occulta philosophia*, Agrippa outlines his view of the world as being divided into three strata: elemental, celestial, and intellectual. Ceremonial magic sought to influence the angelic beliefs of the intellectual order; celestial magic the stars of the celestial order; and natural magic the elements of the elemental order.

In book 1, on the elemental world and natural magic, Agrippa dedicated chapters 52-60 to divination. Included within these chapters are the kinds of divination that one might expect to come across in books: chiromancy and physiognomy; augury and auspices; divination by all kinds of animal behaviour; brontology (divination by

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<sup>483</sup> See Gary K. Waite, *Heresy, Magic and Witchcraft in Early Modern Europe* (Basingstoke: Palgrave Macmillan, 2003), p. 120. On *De occulta philosophia*, see Frances A. Yates, *Giordano Bruno and the Hermetic Tradition* (Chicago: University of Chicago Press, 1964), pp. 130-143.

thunder and lightning); geomancy, hydromancy, aeromancy, and pyromancy; necromancy in the original sense of the word, i.e. the revival of the dead to interrogate them about future matters; and oneiromancy. Agrippa makes no mention in this set of chapters of divination by numbers, onomancy, or the 'Sphere' at all.<sup>484</sup>

Agrippa dedicates his second book, on the celestial world, to the discussion of mathematics. Chapter 20 is titled, 'What numbers are attributed to letters; and of divining by the same'. This chapter opens:

The Pythagorians say (*Aristotle* and *Ptolemy* are of the opinion) that the very Elements of letters have some certain divine numbers, by which collected from proper names of things, we may draw conjectures concerning occult things to come. Whence they call this kind of divination Arithmancy, because, *viz.* it is done by numbers, as *Terentianus* hath made mention of it in these verses:

Names are, they say, made of but letters few  
Unfortunate, of many, do foreshew  
Success; so Hector did Patroclus slay  
So, Hector to Achilles was a prey.<sup>485</sup>

This poem is perhaps a reference to the *Sphere of Petosiris*, which uses the example of Hector and Achilles to demonstrate its workings (see chapter 3). Agrippa then discusses the *Si vis scire* onomancy as first seen in Pliny's *Natural History*, and outlines the principles of the astrological onomancy found in the *Alchandreana* (see chapter 1). The 'Sphere' is in fact the only onomancy not explicitly mentioned in this chapter, but there is no reason to believe that Agrippa would not have regarded the 'Sphere' as belonging to this category of divination. Agrippa ends this chapter with a lengthy explanation of how divination by numbers works, using Platonic and Biblical examples:

And let no man wonder that by the numbers of names many things may be Prognosticated, seeing (the Pythagorian Philosophers, and Hebrew Cabalists testifying the same) in those numbers lye certain occult mysteries understood by few: for the most High created all things by number, measure and weight, from whence the truth of letters, and names had its original, which were not instituted actually, but by a certain rule (although unknown to us). Hence *John* in the Revelation saith, Let him which hath understanding compute the number of the name of the beast, which is the number of a man. Yet, these are not to be understood of those names, which a disagreeing difference of Nations, and divers rites of Nations according to the causes of places, or education have put upon men; but those which were

<sup>484</sup> Agrippa, *Three Books of Occult Philosophy*, pp. 105-135.

<sup>485</sup> Agrippa, *Three Books of Occult Philosophy*, p. 235.



inspired into everyone at his birth, by the very Heaven with the conjunction of Stars, and those which the Hebrew Mecubals, and wise men of *Egypt*, long since taught to draw from the generation of every one.<sup>486</sup>

Therefore, one of the most influential occult philosophers of the Renaissance valued onomancy so highly that he placed it in the tier above other forms of divination. This is evidence by the fact that all other forms of divination were placed in Book 1 of *De occulta philosophia* (on the elemental world), while number-letter divination was placed in Book 2 (on the celestial world). This was probably because of onomancy's mathematical element, and this echoes a passage in the *Speculum Astronomiae*, written by Albertus Magnus in the 1260s as a response to growing concerns at the University of Paris about the legitimacy of astrology (discussed in chapter 7).<sup>487</sup> Most significantly, Agrippa used Scripture to explain number-letter divination. By fusing Christian theology with onomancy, Agrippa sought to bring this art into the world of respectable science. Manuscript evidence suggests that the 'Sphere' was regarded by many as a serious prognostic in the Middle Ages, but this was the first real attempt at providing a rationale for onomancy which sought to place it in a Christian framework.

As well as Agrippa, other scholars across early modern Europe produced works justifying the art of onomancy. In 1549 Annibale Raimondo (b. c. 1505), a Veronese astrologer, published *Nomandia*, a treatise in Italian on the art of onomancy. This work was translated into Latin in Vienna in 1603 by Nicolaus Pierius, and was entitled *Anibalis Raymundi Veronensis Mathematici Clarissimi Artis Onomantiae Libellus* ('The Book of the Art of Onomancy of Anibale Raimondo, Most Famous Astrologer of Verona'). Raimondo's introduction to the treatise is the first work known to me which provides a justification and defence of the practice of the onomantic art.

Very few details of Raimondo's life can be gleaned from his surviving works. On the title page of the 1549 edition of the Italian original, he is described as an astrologer, geomancer, chiromancer and physiognomist. We are told that he was an active youth, engaging in military activities. He was apparently accused of homicide and tortured more than once.<sup>488</sup> He was, it seems, a notable astrologer, composing

<sup>486</sup> Agrippa, *Three Books of Occult Philosophy*, pp. 236-237.

<sup>487</sup> Albertus Magnus, *Speculum Astronomiae* trans. in Zambelli, *Speculum Astronomiae*, p. 273.

<sup>488</sup> Annibale Raimondo, *Opera dell'antica et honorata scientia de Nomandia* (Venice: for Giovita Rapiro, 1549).

annual astrological predictions in Italian, and a prediction for 1550 for the Doge and Grand Council of Venice printed at Mantua.<sup>489</sup> The Italian original of *Nomandia* appears to have enjoyed immediate circulation, as it was reprinted in 1550 and 1551,<sup>490</sup> however, there is no evidence that this work ever travelled as far as England. The present study analyses Pierius's Latin translation: for, if the work did ever circulate in England, it would most likely have done so in Latin.<sup>491</sup>

Raimondo's introduction attempts to provide a justification for the practice of number-letter divination, and brings together the ancient debate on the power of names, discussed in chapter 2, and the art of onomancy. This is not surprising: Raimondo was a Renaissance scholar, who took a keen interest in ancient philosophy. The introduction opens with a declaration from the author that he is attempting to restore the art of onomancy to its former place of distinction as an important category of divination.<sup>492</sup> He then states that some may regard onomancy as 'vain and absurd', before launching into a Christian justification for the practice of this art. He says that just as the Scriptures acknowledge, that in both men and animals, every small blemish is credited with some kind of predictive significance, names, which invariably are attached to men and to things through God's inspiration, are imbued with wondrous mysteries. The Scriptures say that God ordered Adam to give names to things which would express their nature and powers.<sup>493</sup> All names, then, are divinely inspired, and the author uses the examples of Adam and Eve to illustrate his point. Eve is 'virago', derived from 'vir'. 'Adam' was

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<sup>489</sup> Annibale Raimondo, *Al Sereniss. Principe et allo Illustrissimo ... Maggior Consiglio di Venetia. Pronostico de A.R. Veronese sopra la dispositione de l'anno 1550* (Mantua: Venturino Ruffinelli, 1550).

<sup>490</sup> Thorndike, *A History of Magic*, vol. IV, p. 473.

<sup>491</sup> A reproduction of an original version of Pierius's translation can be viewed in full on the website of the Warburg Institute, at <<http://warburg.sas.ac.uk/pdf/fmh175b2770681.pdf>>, accessed 7 September 2014.

<sup>492</sup> 'Hinc est, quod Onomanticam artem, que olim inter divinatrices non inferiorem locum obtinuit, neglectu & hominum incuria fere abolitam, & tenebris obfuscata, renovare & splendori restituere constitui: ut homines, cum in propriis nominibus inesse quid Divini, nec illis frustra imposita cognoverint, magis & Divinam admirentur Providentiam, & laudent Benignitatem'. *Anibalis Raymundi Veronensis mathematici clarissimi Artis onomantiae libellus* trans. Nicholas Pierius (Brno: Excudebat Bartholomaeus Albertus Auriga, 1603), not paginated.

<sup>493</sup> 'Nam quemadmodum, tam in brutis quam in hominibus vix lineola apparet, quin aliquid occulti, & futuri eventus de ea cuius est, significet (ut de iis plena extant volumina) sic etiam nomina, que semper nutu Dei hominibus & rebus imponuntur, mirabilibus esse referta misteriiis, aperte sacrae confirmant literae: testantur enim jusisse Deum Adamo, ut rebus nomina imponeret, quibus illa imposuit, quae & naturam, & eorum efficaciam exprimerent'. Raymundi, *Artis onomantiae*, not paginated.

so named because he was formed from the earth.<sup>494</sup> Raimondo's preface, then, shows that his treatise was very much a product of Renaissance Italy. It stresses the importance of classical learning and knowledge of ancient philosophy, and gives the impression of the revival of a hitherto-lost art (in fact, nothing could be further from the truth. As this thesis has demonstrated, various onomantic devices circulated in abundance in manuscripts throughout the Middle Ages).

So much for Raimondo's motives: what of those Nicolaus Pierius in publishing (and possibly translating) the work in 1603? About Pierius himself nothing is known. This version is dedicated to Gotthard von Starhemberg (1563 – 1628), a member of the aristocratic Austrian family. According to this dedication, Gotthard was a military adviser and commander of an armoured cavalry.<sup>495</sup> Pierius explains that he has recently come into the possession of Raimondo's work, and immediately thought to translate it for Gotthard, as a man of great knowledge with a keen interest in the sciences.<sup>496</sup> He goes on to say that he is dedicating the book to Gotthard as a token of friendship.<sup>497</sup> Pierius may or may not have been personally acquainted with Gotthard, but the whole three-page dedication is full of flattery for the dedicatee, and reads as an attempt to secure patronage or favour.

Thus, there were several justifications and explanations of the onomantic art circulating at the same time as manuscript and printed versions of the 'Sphere' in the period c. 1500 – c. 1700, including the very influential work of Agrippa. Above all, Anibale Raimondo's treatise is the earliest known tract dedicated solely to the art of onomancy, and an attempt to provide both a justification for the practise of this art, and a rationale for it. This, along with the work of intellectuals such as Agrippa, is a departure from the medieval context of the 'Sphere' and onomancy as a whole. There was no attempt to explain medieval onomancy, or to justify it within a Christian framework. However, condemnations of the onomantic art circulated at the

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<sup>494</sup> '...ut de Eva statim subiungitur exemplum, quod appellata sit virago, quia de viro sumpta est, & Adam sic dictus, quia ex terra formatus. Planum etiam est nullum nomen sanctis patribus fuisse datum, quin illorum naturam, & futuram sanctitatem exprimeret'. Raymundi, *Artis onomantiae*, not paginated.

<sup>495</sup> 'Illustrissimo Domino, D. Gottardo, Baronia Starhennberg, &c. S. C. M. Consiliario Bellico & Cathaphrastorum aequitum praefecto'. Raymundi, *Artis onomantiae*, not paginated.

<sup>496</sup> 'Et cum mecum ipse reuoluerem, cui potissimum Libellum hunc commendarem, tu vnus mihi occurristi, qui omni scientia plenus, quorumcunque scientiarum libellos libentissime amplecteris'. Raymundi, *Artis onomantiae*, not paginated.

<sup>497</sup> 'Quare te quam humillime rogo, vt pro tua benignitate hunc etiam Libellum suscipere...'. Raymundi, *Artis onomantiae*, not paginated.

same time as the justifications in the early modern period, and these must now be analysed to gain the full picture.

### Condemnations

The Reformation of the Church in England did not only affect religious and moral life, but also intellectual and cultural spheres. The way in which the Reformation affected attitudes to magic, divination, and other forms of the occult is complex. Essentially, there was a combination of the sophisticated demonological thinking that took shape in the fifteenth century with the likes of the *Malleus Maleficarum*, first published in Speyer in 1487, and the rise of Protestantism, and especially Puritanism, which led to an increased obsession with, and fear of, the Devil. Suspected witches were thought of as demonic agents who had made a pact with Lucifer.<sup>498</sup> The later sixteenth century was the period of the so-called 'witch craze' where c. 40,000 – 50,000 people Europe-wide were executed as witches.<sup>499</sup>

It should be pointed out that the so-called 'Great Witch Hunt' did not take off in England as it did in parts of continental Europe. This is not to say that there were no prosecutions: there are ample records of those who probably actually practised magic and divination, as well as those suspected of such crimes, appearing in court.<sup>500</sup> Furthermore, there were a few isolated mass persecutions in England at this time, such as the well-known witch-hunt of Matthew Hopkins (c. 1620 – 1647) in south-east England during the Civil War of the 1640s. But none of these mass persecutions were anything like the scale of any of those which occurred in Continental Europe at this time. Essentially, less stress was put on the demonic pact in English witchcraft trials, and more importance was given to the idea that a suspected witch had committed *maleficium*: that is, an act of malice.<sup>501</sup> Thus it was the aims of magical practices, real or perceived, that were at issue in the English context of witchcraft.

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<sup>498</sup> On the impact of the Reformation on demonology and witchcraft, see Brian P. Levack, *The Witch-Hunt in Early Modern Europe*, third edition (Harlow: Pearson Education, 2006), pp. 109-133; and Stuart Clark, *Thinking With Demons: The Idea of Witchcraft in Early Modern Europe* (Oxford: Clarendon, 1997), pp. 489-508.

<sup>499</sup> This figure is taken from Robin Briggs, *Witches and Neighbours: The Social and Cultural Context of European Witchcraft*, second edition (Oxford: Blackwell, 2002), p. 225.

<sup>500</sup> On early modern witch trials in England, see Keith Thomas, *Religion and the Decline of Magic: Studies in Popular Beliefs in Sixteenth- and Seventeenth-Century England* (London: Penguin, 1991), esp. pp. 599-680; and Alan MacFarlane, *Witchcraft in Tudor and Stuart England*, second edition (London: Routledge, 1999).

<sup>501</sup> Thomas, *Religion and Decline of Magic*, pp. 525-534; Levack, *Witch-Hunt*, pp. 218-219.

Despite the relative lack of stress placed on the demonic pact in English witchcraft prosecutions, several Protestant intellectuals writing about witchcraft stressed the link between the Devil and witches. The most important and influential of these was William Perkins, whose *Discourse on the damned arte of witchcraft* was first published after his death in 1608. Perkins was a vehement condemner of all forms of magic. On witchcraft, Perkins states:

Witchcraft is of two sorts; Divining, or Working. For the whole nature of this art, consisteth either in matter of Divination and coniecture, or in matter of practise. And in both these it is to be remembred, that nothing can be effected, unlesse the partie have made a league with the Devill, expresse or secret, or at the least, a preparation thereunto, by a false and erroneous opinion of the meanes.<sup>502</sup>

Perkins, then, is clear: divination is a form of witchcraft, and operates by means of a demonic pact. Other early modern condemnations of the occult came from a different viewpoint altogether: that of the inefficacy of occult practices, and therefore the pointlessness of witch-hunting. The first important example of this genre was the *De praestigiis daemonum et incantationibus ac venificiis* of the Dutch physician and occultist Johann Weyer, published in 1563.<sup>503</sup> Weyer's work was translated into French and German before the end of the sixteenth century.<sup>504</sup> It also circulated in Latin in England at this time, since it was available to Reginald Scot, who published his *Discoverie of Witchcraft* in 1584. Weyer was keen to stress that many so-called magical and divinatory practices were in fact nonsensical, and in an extensive chapter listing all forms of divination, he refers to two types of name-divining:

[Divination by dice] has come straight down from the Pythagoreans, as has *arythmanteia* [number-divining]. They assigned fixed numbers to individual letters, and attributed to the numbers the power of revealing what was hidden and what was to come... *Onomanteia* [name-divining] is taken from the name of the person making inquiry, by means of the individual letters of the name and their shapes.<sup>505</sup>

Weyer, therefore, distinguishes two forms of name divination: the first, arithmancy, being the number-letter category into which the 'Sphere' would fall, and the second,

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<sup>502</sup> William Perkins, *A discourse of the damned art of witchcraft so farre forth as it is revealed in the Scriptures, and manifest by true experience* (Cambridge, 1610), pp. 55-56.

<sup>503</sup> Johann Weyer, *De praestigiis daemonum et incantationibus ac venificiis* (Basel: Oporinus, 1563).

<sup>504</sup> *Witches, Devils and Doctors in the Renaissance* ed. and trans. George Mora, Benjamin Kohl and John Shea, with Erik Midelfort and Helen Bacon (Binghamton, NY: Medieval and Renaissance Texts and Studies, 1991), p. lxix.

<sup>505</sup> Johann Weyer, *De praestigiis daemonum*, in *Witches, Devils and Doctors* ed. and trans. Mora et al., p. 138.

onomancy, operating solely on the power of the letters of the name, including letter shapes. The latter is a new definition of onomancy. But despite Weyer's insistence that witchcraft most likely arose from delusion in the accused witch, his insistence on the reality of the Devil left his argument vulnerable.<sup>506</sup>

Keen to bolster Weyer's argument, Reginald Scot, English gentleman and MP, published his *Discoverie of Witchcraft* in 1564. Scot had quite possibly been a witness to the witch trials at St. Osyth, Essex in 1582.<sup>507</sup> That he probably had first-hand knowledge of the trial procedure for suspected witches may well have led to his view that witchcraft was a deception on the part of those who actually purported to carry out magic, and that the vast majority of people accused of witchcraft were innocent old women who had fallen out with their neighbours. In this work, Scot dedicated a whole section to casting lots, and adds a paragraph at the end on onomancy, in which he discusses the *Victorious and Vanquished* and divining by numbers to work out blindness - as in the *Si vis scire* onomancy (discussed in chapter 1). From his opening invective on *sortilegium*, it is clear that Scot believes that lot casting is no more than deception:

There is a lot also called *Pythagoras* lot, which (some saie) *Aristotle* beleeveth: and that is, where the characters of letters have certeine proper numbers; whereby they divine (through the proper names of men) so as the numbers of each letters being gathered in a summe, and put together, give victorie to them whose summe is the greater; whether the question be of warre, life, matrimonie, victorie, &c: even as the unequall number of vowels in proper names portendeth lacke of sight, halting, &c: which the godfathers and godmothers might easilie prevent, if the case stood so.<sup>508</sup>

Scot, then, makes it plain that the use of a 'Sphere', like many other forms of lot, is no more than nonsense.

The final condemnation of onomancy which will be addressed is that of James VI and I. James's short treatise entitled *Daemonologie* was published in 1597. Stuart Clark points out that this work was neither original nor profound, although there is good evidence of James's personal involvement in its composition. The work's original purpose was seemingly to provide an argument against Weyer and Scot's

<sup>506</sup> Sydney Anglo, 'Reginald Scot's *Discoverie of Witchcraft*: Scepticism and Sadduceeism', in *The Damned Art: Essays in the Literature of Witchcraft* ed. Sydney Anglo (London, Henley, and Boston: Routledge & Kegan Paul, 1977), pp. 110-111.

<sup>507</sup> Anglo, 'Reginald Scot', p. 108.

<sup>508</sup> Reginald Scot, *The Discoverie of Witchcraft* ed. Montague Summers (New York: Dover, 1972), p. 113.

view of the inefficacy of witchcraft, but the work also demonstrated something of James's credentials as a Scottish king. James's composition of this work must be seen against the backdrop of the important witchcraft trials which had taken place at Berwick in 1590 – 1591, where over 100 people were arrested as witches, accused of trying to sink James's ship when he was en route to marry Anne of Denmark (1574 – 1619).<sup>509</sup> James makes an important reference to arithmancy, and other forms of divination, as sub-branches of astrology:

The second part is to truste so much to their [i.e. the stars'] influences, as thereby to fore-tell what common-weales shall florish or decay: what persones shall be fortunate or unfortunate: what side shall winne in anie battell: What man shall obtaine victorie at singular combate: What way, and of what age shall men die: What horse shall winne at matche-running; and diverse such like incredible things, wherein *Cardanus*, *Cornelius Agrippa*, and diverse others have more curiouslie than profitably written at large. Of this roote last spoken of, springs innumerable branches; such as the knowledge by the nativities; the *Cheironomie*, *Geomantie*, *Hydromantie*, *Arithmantie*, *Physiognomie*: & a thousand others: which were much practised, & holden in great reverence by the *Gentles* of olde. And the last part of *Astrologie* whereof I have spoken, which is the root of their branches, was called by them *pars fortunæ*. This parte now is utterlie unlawful to be trusted in, or practized among christians, as leaning to no ground of natural reason: & it is this part which I called before the devils schole.<sup>510</sup>

James is of course referring to the uses of all divinatory arts in this passage, but he repeats the main uses of the 'Sphere' in later medieval England: the prediction of life or death, and the outcome of a duel or battle. He also makes reference to divination being used for financial lucre, to work out which horse will win a race. This ties in with the change in use of the 'Sphere' from the medieval to early modern periods – it was as much an item of recreation as a serious prognostic. Additionally, James refers to Agrippa's work, and therefore it is quite possible that instead of merely listing forms of divination, he actually understood the distinctions between them.

No matter which angle these early modern condemnations of magical and divinatory practices were coming from, the very real fear of the influence of the Devil, or that of protesting the inefficacy of occult practices, all saw divinatory practices, including

<sup>509</sup> Stuart Clark, 'King James's *Daemonologie*: Witchcraft and Kingship', in *The Damned Art* ed. Anglo, p. 156.

<sup>510</sup> James VI and I, *Daemonologie* (1597) (Edinburgh: Edinburgh University Press, 1966), pp. 13-14.

number-name divination as a part of witchcraft beliefs as a whole and therefore a direct threat to their Christian beliefs, whether Catholic or Protestant.

### Prosecutions

So much for what particular theologians and philosophers thought about the 'Sphere' in early modern England – what happened in practice? Was anyone ever caught using a 'Sphere', and if so, what was their punishment? Many more legal records survive from the period post-1500 than from the later Middle Ages, and therefore there is much more evidence to work with. An exhaustive search of these records, mainly unpublished, is outside the scope of the present thesis. However, Thomas's *Religion and the Decline of Magic* notes one instance of a prosecution for using a 'Sphere'. The records of the Diocese of York state that, in 1564:

Sir Joh. Betson was enjoined upon payne of forfatynge his recognisaunce to appere personallie xiii Martii prox. and to bringe in suche books as he hath concernynge the practises of conjuracions and speciallie Plato Spere and Pithacoras Spere and such lyk.<sup>511</sup>

On a second appearance at court he said 'that he had Pithagoras Spere which he delivered in to this Courte and usethe the same as he saieth for thinges lost and that he had Platos Spere etc'.<sup>512</sup> Aside from surrendering the said books containing the 'Spheres', Betson's punishment was to carry out public penance in the markets of Yarm, Richmond, and Northallerton. Given that Betson is said to have had both 'Pithagoras Spere' and 'Platos Spere' it is worth speculating that the redaction of the 'Sphere' text he had in his possession may have been the version close to the one that circulated at least from the end of the fifteenth century in Germany, copied into the *Namenmantik* of Johannes Hartlieb (discussed in chapter 4). This was composed of a longer textual redaction with five different 'Spheres' and accompanying text, each 'Sphere' dedicated to a different ancient authority: Pythagoras, Aristotle, Plato, Haly, and Ptolemy.

The identity of John Betson remains somewhat elusive, but he may be the same Sir John Betson referred to as a 'clarke' in the will of Robert Brackenbury, of Langton,

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<sup>511</sup> *Ecclesiastical Commission, Act Books, R. VII. A. I, ff. 98, 104, Tudor Parish Documents of the Diocese of York: a selection, introduction and notes by J. S. Purvis* (Cambridge: Cambridge University Press, 1948), p. 198. Cited in Thomas, *Religion and Decline of Magic*, p. 276.

<sup>512</sup> *ibid.*



Durham, witnessed on 12 August 1548, taken from the register at York – although the dates seem a little early.<sup>513</sup> He may also be the Sir John Betson mentioned as owing money to the deceased in the will of Henry Slinger of Little Hutton, near Thirsk, made on 13 May 1558.<sup>514</sup> Thus, John Betson may have worked as a public official in the North Yorkshire area in the mid-sixteenth century, although it is not possible to be certain. If John Betson's identity could be confirmed, it would be evidence for the gentry's interest in the 'Sphere' continued into the early modern period, especially given the purpose for which Betson was using his 'Spheres': to find lost property. Whether this was to find his own items, or whether he made money on the side locating lost property for other people, cannot be known. It is also not clear how one would use a 'Sphere' to locate missing property: all it might be able to tell the operator was if the goods might be recovered, and how quickly.

Given the case of Betson, it seems that the use of a 'Sphere' was not seen as a particularly serious crime in early modern England compared to the potentially severe punishment that an accused witch might be accused of. Why was this? The main reason is most likely that the ends to which the 'Sphere' was being used were generally benevolent, or at least neutral: the prediction of life or death, the discovery of lost things, the outcome of conducting business on a particular day, and so-on. One could not use a 'Sphere' to cause an effect, merely predict the future, and, as discussed, the act of *maleficium* was the main concern of the English authorities when arresting and prosecuting suspected witches. Perhaps Betson's prosecution was based on his failure to find lost treasure for a client after extracting a fee, rather than on the methods used to do so.

There is also some evidence of a prosecution for practising onomancy, perhaps by using the 'Sphere', from continental Europe. For example, between 1690 and 1693 in Zaragoza, Spain, seventeen people were arrested accused of using occult means to find lost treasure. According to the confession of a priest who was involved, they had gone to the castle at Miranda to draw a magic circle, celebrate black masses, and invoke demons. Accused of aiding them was a capuchin friar, who was found to possess the 'Pythagorean alphabet', a certain chemical for transmuting silver into

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<sup>513</sup> *Testamenta Eboracensia: A Selection of Wills from the Registry at York* ed. J. W. Clay, vol. VI (London: The Surtees Society, 1902), p. 195.

<sup>514</sup> *Wills and Inventories from the Registry of the Archdeaconry of Richmond: Extending Over Portions of the Counties of York, Westmerland, Cumberland, and Lancaster* ed. James Raine vol. XXVI (London: The Surtees Society, 1853), p. 110.

gold, the *Key of Solomon*, a work of Agrippa, and a piece of parchment containing a spell for impenetrability. Whether the 'Pythagorean alphabet' refers to the 'Sphere' or another kind of onomancy cannot be known, but it is interesting here to see an onomancy listed as an occult item along with dangerous items of ritual magic such as the *Key of Solomon*. The monk was sentenced to ten years' exile, the first four of which were to be spent in a secluded monastery.<sup>515</sup> How far we can take the priest's confession at face value is hard to determine. However, what is certain is that this 'Pythagorean alphabet' was a known occult practice, at least to the interrogators, if not to the monk himself.

### Conclusion

It is clear from examining some of the 'Spheres' that circulated in printed books and manuscripts in the period c. 1500 – c. 1700, and from texts that were produced both to justify and condemn the practice of onomancy in this period, that both changes and continuities exist between the form and fortune of the 'Sphere' in late medieval and in early modern England. The 'Sphere' remained in the ownership of a wide cross-section of literate society: from practical medical practitioners such as Henry Dyneley to university trained physicians like Robert Fludd; from merchants like Clement Draper to the gentry householders for whom the fortune-telling 'coffee-table' books of the likes of J.S. were surely designed. The 'Sphere' also moved firmly into the world of Renaissance, with alchemists like Thomas Potter owning and perhaps using this device. The 'Sphere' was, however, copied for two different purposes: the recreational on one hand, and the serious on the other, as evidenced by both text and context. Perhaps this is reflective of more distrust of the efficacy of onomancy in the period post-1500.

Textually, the form of the 'Sphere' continued to evolve after 1500 as it had done in the fourteenth and fifteenth centuries. However, what changed in the period post-1500 was the method of operation of certain 'Sphere' redactions, introducing elements such as the random selection of a number, rather than the value of the person's name. This could perhaps reflect the game-like nature of the 'Sphere' in fortune-telling manuals of the likes of Samuel Strangehopes and J. S., or perhaps the fact that by starting with a random number, the operation of the 'Sphere' was far easier to memorise if the diagram was not available. This was perhaps to make it

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<sup>515</sup> María Tausiet, *Abracadabra Omnipotens: Magia urbana en Zaragoza en la Edad Moderna* (Madrid: Siglo, 2007), p. 71. I owe this reference to Lauren Kassell.

easier for people with limited or no literacy to operate and/or recall. Additionally, it was not just the printed fortune-telling manuals discussed earlier that employed this method: the 'Sphere' in Clement Draper's prison notebook also uses a random number to begin the operation. Draper's warning that the 'Sphere' was not to be used for any serious prediction is further evidence for the recreational use of the 'Sphere'.

The early modern period, too, saw the beginning of justifications being written for the practise of onomancy, by notorious occultists such as Agrippa, and the combining of the Pythagorean tradition with Christian theology. This was perhaps in part an attempt to rationalise the art of onomancy, or to protect it against the increased condemnations of the occult, including number-letter divination, which became more and more prevalent during the sixteenth century. The rise of a sophisticated demonology, which had begun in the fifteenth century, and the Reformation of the Church, led to a number of condemnations of the occult by men such as Scot and Weyer, and these condemnations included specific references to divination by numbers. Onomancy as a category, therefore, was created both by those practising the art, and those condemning it. Furthermore, John Betson's prosecution in 1564 shows that the use of a 'Sphere' was, at least to some authorities, a crime in practice as well as in theory, although Betson's relatively lenient punishment is perhaps indicative of the severity of the offence. The 'Sphere' remained as difficult to categorise in early modern England as it had been in the Middle Ages: both licit and illicit; recreational and serious; simple and sophisticated.

### Conclusion

As evidenced by extant manuscripts, the 'Sphere of Life and Death' was a useful, practical tool of prediction owned, copied and used by a variety of literate people in late medieval England. The corpus of 55 surviving manuscripts alone demonstrates just how widespread this device was, and is reason in itself for a detailed study. It is easy for the modern viewer to regard the 'Sphere' as nothing more than medieval superstition, used either by ignorant people who knew no better, or as a mere diversionary game. This study has proved that both were far from the case. The manuscript contexts and travelling companions of the 'Sphere' in the manuscript corpus strongly suggest that it was regarded as a serious prognostic by at least some copyists. It was considered to be worthy of inclusion with treatises on the medical curriculum at the medieval university, in the commonplace books of the gentry, with items on the quadrivial curriculum, and in monastic manuscripts.

The working definitions of 'divination', 'prognostic', and 'onomancy' offered by this thesis are merely heuristic, but nevertheless important in understanding and explaining the wider written context of the 'Sphere'. In terms of divination, the 'Sphere' was part of a rich tradition in late medieval English manuscripts. This category includes complex practices like geomancy and oneiromancy, and less complicated methods such as chiromancy. The 'Sphere' was also a prognostic, and fitted into this genre alongside lunaries, Egyptian Days, and January prognostics. Onomancy, the category to which the 'Sphere' belongs, is perhaps the most common of all divinatory methods found in medieval manuscripts. Within the tradition of onomancy the 'Sphere' was possibly the most popular of all methods, to judge by the number of surviving copies. Also widespread were two other main branches: the *Victorious and Vanquished* and the onomancies of the *Alchandreana*. All late medieval onomancies are descended from these three main versions in some way.

As well as placing the 'Sphere' in the context of predictive material, it has also been necessary to examine it from the point of view of wider medieval culture. The 'Sphere' has three main operative elements: numbers, names, and the lunar/planetary element. Numbers were seen in the Platonic tradition, revived in the high Middle Ages through Augustinian theory, as the basic building-blocks of nature. Names were the subject of a lively debate in Antiquity: were they arbitrary designators, or did they carry something of the bearer? This debate continued into

the later Middle Ages, with figures such as Abelard and William of Ockham expressing the view that names were something more than mere signifiers. These beliefs have been further illuminated by anthropological studies, which have shown a range of cultures to hold various ideas about the essence of names. Furthermore, the lunar and planetary element in the operation of the 'Sphere' can be easily explained by recourse to medieval notions about the macrocosm and microcosm: that the heavens control events on earth. Additionally, the 'Sphere' can be seen in the context of medieval visual culture. It was symbolic of the round universe and life-cycles. Its (usually) circular shape also gave it an air of authority by providing associations with the diagrams present in scholastic texts. But this could also provide negative connotations, by associating the 'Sphere' with items of illicit ritual magic.

Tracing the history of the 'Sphere' before the ninth century is not a simple process, and is for the most part educated guesswork. However, it is certain that it came to the Latin from the Greek, given the existence of Greek words in particular 'Sphere' redactions and diagrams. There was also a version present in ancient Syriac, which may or may not have come to the Latin via Greek. Onomancies are also present in Hebrew, Arabic and Ethiopic. That the 'Sphere' was translated sometime in the sixth century at a monastery in northern France, Flanders, or the Rhineland has been postulated, and there is no reason to suggest any other time or place of translation. The first known extant Latin 'Sphere' dates from c. 805 CE, and after that, it was copied into more and more manuscripts alongside computistical items. Five versions existed in the early medieval corpus, which were corrupted beyond use – so much that certain copyists even sought to find the 'right' version, such as Abbo of Fleury and the scribe of Cambridge, Trinity College Library MS O.7.41. The 'Sphere' fell out of circulation in England c. 1125 with the decline of the early medieval computistical tradition, appearing again at the end of the twelfth century in a much wider variety of manuscript contexts. Early medieval attributions were mainly to Pythagoras and Apuleius, which can be explained by looking at the legends surrounding the lives of both men.

From the end of the twelfth century, the 'Sphere' reappeared in manuscripts of English provenance. Over the next three hundred years, new texts are attested. These probably came about both as the result of the trend for scribes as authors which developed during the fourteenth and fifteenth centuries, and through new translations from the Graeco-Arabic tradition from the twelfth century onwards.

Vernacularisation into English occurred fairly late, c. 1400, with one Anglo-Norman 'Sphere' attested from a century or so earlier. New attributions are also attested but these were more than likely a result of scribal error than any intention on the part of copyists. Several manuscripts in the corpus can be confidently placed with particular scribes and/or owners, across a broad geographical range. Finally, the relative dearth of signs of use of the 'Sphere' should not be taken as a lack of interest in this device, as rough workings would probably not be carried out on the 'Sphere' manuscript itself.

Despite this popularity in manuscripts owned by a wide range of literate society, divination in general, and the 'Sphere' specifically, was illicit divination. Divination was condemned in the late Middle Ages by a variety of theologians and churchmen, who took their lead from Augustine and Isidore of Seville. However, the lists of practices copied in these condemnations were for the most part literary *topoi*, and probably do not reflect actual practice of the later Middle Ages. None of these condemnations makes reference to the 'Sphere'. However, Gratian's *Decretum* condemned the 'Sphere' specifically as an illicit item of divination, and this condemnation was copied into pastoral manuals and self-help books for the upper levels of society. Despite these condemnations, there is no evidence of anyone in the Middle Ages being prosecuted for possessing or using a 'Sphere'. This should not be surprising: trial records for medieval England are scant, and when they do refer to occult practices, they are often not specific about the particular practice involved. Bishops' registers occasionally list prosecutions for indulging in magic or divination, but as with trial records, they are rarely specific. All that can be established is the likely punishment that would be meted out by looking at punishments for similar transgressions. It seems that the likely punishment for being caught using a divinatory item in late medieval England was lenient: a perpetrator could expect to receive public penance lasting no more than a few days at most.

Despite its illicit nature, the 'Sphere' was popular in manuscripts intended for use by physicians who had perhaps even attended university to study medicine. It was a unique prognostic in that it had the guise of a sophisticated device, yet was almost childishly simple to use, and that it claimed to offer a definite answer but might not. Its appeal to learned doctors can be explained by both its lunar and planetary element, in line with the mainstream medical philosophy of the time. Additionally, attributions to Pythagoras and Apuleius, among others, added an air of authority to the 'Sphere'. It had also been associated with computus in the early medieval

period: ancient, respected tables of astronomy, used for calculating the dates of Christian feasts. Finally, the ambiguity that could arise from using a corrupted prognostic was perhaps useful, as the learned physician trod the delicate path between caring for the body and caring for the soul of his patient: two duties that could be at odds with one another.

It was not only literate medical practitioners who took an interest in the 'Sphere'. It may also have appealed to gentry families. This is evidenced by its inclusion in a codex owned by the Haldenbys. Such books were probably circulated around neighbouring families of a similar standing, and so the 'Sphere' was not only a useful, practical prognostic, but also a status symbol. It was also of possible interest to aristocrats. This is clear from its inclusion in luxury manuscripts of fortune-telling such as Oxford Bodleian Library MS Digby 46, but also in the textual redaction opening *Prenosticacio Pictagore*. The reference to the duels of Henry of Grosmont and John of Annesley not only adds secular, chivalric authority to the 'Sphere', but raises questions about the use of the 'Sphere' to predict the outcome of a duel. On the one hand, the 'Sphere' was not ideally suited to such a task, since both perpetrators could be identified as winners or losers. However, like with the prediction of life or death, ambiguity could be useful to the king or other authority in order to call off the duel without losing face. Duels between two nobles were never desirable. However, the 'Sphere' could also be useful in picking the best possible day on which to hold a duel for a particular participant to prevail.

The 'Sphere' is also extant in manuscripts for scholars of quadrivium at medieval Oxford and perhaps Cambridge. London, British Library MS Royal 12 E XXV can even be placed confidently at Merton College, one of the centres of astrological learning in fourteenth-century Europe. There are several possible reasons for the inclusion of a practical text of prediction with theoretical tracts of astronomy, arithmetic, and philosophy. There may simply have been an intellectual link: the 'Sphere' was a reminder for the most solemn ends to which prognosis could be utilised. Another hypothesis is that it was intended for use as a serious prognostic: either for the prediction of life and death, or for lucrative ends, in the way that Chaucer's scholar Nicholas predicted the weather in exchange for financial gain. The 'Sphere' may also have appeared in manuscripts alongside treatises on the astronomy and arithmetic curriculum as a practice tool.

Monasteries, too, continued to possess 'Spheres' in the later Middle Ages. Three Benedictine monasteries, and two individual monks, can be assigned ownership of the 'Sphere' in this time. Monastic interest in the 'Sphere' can be explained by the importance of deathbed rituals in Benedictine customaries. Such a ritual necessitated the participation of every monk in the monastery, and therefore an accurate prediction of time of death was paramount to the fate of the monk's soul. Paradoxically, monks may also have taken an interest in the 'Sphere' for decidedly more illicit reasons. The occult nature of the 'Sphere', and its ability to predict the future, might have been appealing to monks: perhaps to test such occult devices for orthodoxy and efficacy.

After 1500, there were changes and continuities in both the texts and contexts of the 'Sphere'. There is evidence that medieval manuscripts containing the 'Sphere' continued to be owned and circulated beyond the end of the Middle Ages. One such example was in the possession of a medical practitioner of the gentry, and another at an Oxford college. Manuscripts and printed books containing the 'Sphere' were also produced in early modern England. However, the 'Sphere' took two diverging paths at this stage. The first was that of an amusing entertainment, as evidenced by the notebook of Clement Draper and the fortune-telling books of Cattan, Strangehopes, and J.S. It was also seen as an item of serious science by university-educated men such as in the manuscript of Thomas Potter and the work of Robert Fludd.

Along with the 'Spheres' themselves in manuscripts and printed books, justifications for, and condemnations of, the use of the 'Sphere' circulated in England c. 1500 – c. 1700. The justification of Agrippa (and, further afield, Raimondo) must be seen against the backdrop of Renaissance scholars seeking to recover what they saw as lost arts from Classical times. Nothing of course could be further from the truth, as onomancy had circulated in many manuscripts throughout the Middle Ages. Both attempted to justify the art of onomancy by recourse to the Bible. Condemnations, produced against the background of the Reformation of the Church, demonstrated an increased fear of the Devil, and seen in the context of the witch trials of early modern Europe. Some condemnations, such as that of Scot, dismissed superstitious practices, including number-letter divination, as nonsensical. Others, for example that of James VI and I, showed real concern with occult practices, including what he referred to as 'arithmancy'. There is evidence of one conviction in this time for someone using a 'Sphere' – John Betson in 1564. His punishment was



not harsh: he was ordered to relinquish his copies of the 'Sphere' and perform three sets of public penance. The punishment issued to the Spanish friar at the end of the seventeenth century was much harsher than that received by Betson. However, this monk had been caught with a number of illicit texts, including treatises of black magic.

This study of the 'Sphere of Life and Death' has shown it to be a paradoxical item in many ways. It was on the one hand an item of serious prediction, conforming to mainstream philosophical principles, while at the same time being very simple and easy to use. It claimed to offer a definite answer, but due to its corrupted nature, it often did not. It was an item of licit medicine, and at the same time condemned by the Church as divination. And, in the period after 1500, it was even both an item of high science, and a device used for amusing diversion. It was these paradoxes in the nature of the 'Sphere' that made it an appealing device to such a wide range of literate people in late medieval and early modern society. Therefore, these paradoxes contributed to its survival to the end of the seventeenth century and beyond.

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## Appendix I

### Transcriptions and Editions of 'Sphere' texts

#### Editorial principles

Expansions are indicated with italics, unknown expansions with an apostrophe. Line breaks are denoted with double slash marks, split words with a hyphen. A new folio mid-text is indicated in square brackets. Obvious errors are indicated with [sic]. Unreadable or erased text is shown with ellipses. Spelling is unaltered from the original. The modern 'I' and 'J', 'V' and 'U' have been used. Punctuation and capitalisation has been modernised where deemed necessary.

In the working edition (26), each sentence has a footnote in which textual variations between the three versions is indicated.

#### 1: London, British Library MS Royal 7 D XXV, f. 76r (s. xii<sup>ex</sup>)

Ratio spere Phitagorice *quam* Apuleius *descripsit* de *quicumque* re volueris scire vel probare ut pote // de egris *qua* die ebdomada evenerit *quota* luna fuerit scire debes addas nomen *ipsius per litteras* // circum *scriptas et* sic *in* unum collige *et* partire per 30 et *quo* remanserit *in spera* respicies // *et* sic *invenies*.

#### 2: London, British Library MS Royal 7 D XXV, f. 76r (s. xii<sup>ex</sup>)

Disce diem lune *in quaque* discubuit. Item nomen discumbentis natale. *Numero super* positum *et* collige // *numerus* utriusque *quantus* fuerit. Tum *super* addas regulares XX *et* hanc summa // divide *per* XXX *et* que remanet require *in* figura tetragona. Si inveneris // illud ipergeia *in* catheo medio eger cito *peribit*. Si *autem in* cathos lateribus // tarde *convalescet*. Si *vero* ipogeia *in* medio catheo fuerit fuerit [sic] *inventum* // eger cito *peribit*. Si *vero in* lateribus ipogeia longa egritudine *confectus* morietur. // Hoc modo cetera *inspicienda et* colligenda sunt.

#### 3: London, British Library MS Additional 15236, f. 108r (c. 1300)

Spera de vita *et* morte sive de re alia quacumque. Ra // -cio spera Pictagore *philosophi quam* Apuleius *describit* de *quacumque* // re scire volueris vel consulere

ut puta de egris qua // die ebdomade eger intravit febrem et eadem die quota // fuerit luna diei precedentis scire debes. Adde *etiam* ipsius // nomine secundum numerum ipsius scriptum per litteras alphabeti. Et in // unum collige et partire per 30us et quicquid remanserit in // spera respicias et sic invenies. Et si sursum inveneris illud // vivet et prospera omnia ei evenient. Si vero infra sive deorsum // inveneris mala sibi evenient et morietur.

4: London, British Library MS Egerton 843, ff. 31v (s. xiii<sup>2</sup>)

Vide foramen spere Pictagore quam Apollonius descripsit. De quacum [sic] // re scire volueris sive de egris sive de preliatoribus sive de fugitivis // sive de quacumque re inquiris. Sume nomen egri vel fugitivi vel preliatoris // vel cuiuscumque rei de qua inquiris et collige numeri litterarum nominis eius // et vide quota est luna et quota est feria et copula insimul et divide // per triginta et quid remanserit in spera respice et si sursum inveneris // numerus vitalis est. Si deorsum mortis presagium. Si Dominicus dies // fuerit adde XIII. Si Lune XVIII. Si Martis XV. Si Mercurii XXV. // Si Jovis XI. Si Veneris XV. Si Saturni XXVI. Inspectaque figura // quo in loco idem numerus sit positus inquire. Si enim inveneris in zoe // -megale si de egro agitur cito convalescet, fugitivus cito // revertetur, gladiator vincet. Si autem in mesizoe hec omnia difficiliter // evenierint. Si autem in zoemica licet prosperum difficile tamen // habitura est exitum. Quid si in eodem fuerint in quo thanathos megas // est inscriptus eger prolonga infirmitate morietur, fugitivus quesitus // non invenietur, gladiator tamen difficile superabitur. Eadem in meso // tanathos celeriora fiunt. Si autem in tanathos micros celerrima.

5: Oxford, Bodleian Library MS Rawlinson D 893, f. 34v (s. xiv)

Spera Pictagore de vita de morte et quicumque // volueris. Sic computabis per omnes litteras ut puta // computes de nomini egris et accipe omnes litteras nomine // huius et adde numerum illorum literarum pro ut in spera // docetur scilicet adde lunam quota fuerit in eo die quo // decubuit ac pro numerum illius diei qua cuilibet fe // -rie corudet' certus numerus. Et istam totalam summam // divides per 30 et quod remanserit indivisum contra inter // numeros suis litteris scriptus si numerus remanserit contras [sic] 30. // Et si in superiori parte inveniatur numerus remanens // vivet si in inferiori parti morietur versus. //

Collige per numerum quicquid cupis esse probandum //  
 lunge simul nomen lunam feriam que diei //  
 Collecta unam summam partire trigintam //  
 Quod superavit rotulus discemit uterque //  
 Qui remanet inferius est vere mortis imago //  
 Si superfuerit ne moriatur et infra. //

6: Cambridge, Gonville and Caius College Library MS 225/240, p. 143-144 (s. xiii<sup>ex</sup>)

Argumentum Pitagore philosophi de egris ad probandum periculum mortis // si consulendo scire volueris de egris utrum periculosa sit infirmitas // an non. Pone feria diei qua infirmitas evenit etatem que lune ipsius // diei et vocabulum pariter egri et numerum ad unam qui que litteram eius nominis per // -tinentem iuxta que infra insertum inveneris. Atque in unum simul collec // -ta per triginta partire. Si autem inferiori spere orbis numero que super XXX re // -manserit inveneris vivet. Si vero inferius morietur. Pro nun // -ciando et de preliatoribus secundo facies. Computa hominum nomina per litteras cum // numero que est in rotulo et diem vel in qua hora quis preliaturus erit et numerum in // unum congregabis et partire per XXX et respice in spera. Nam si numerus // quam in spera notasti sursum remanserit vincet. Si deorsum aut // inferius vincetur. Vide ergo in argumentatione qualiter unusquisque dies de // -beat computari si est prima feria pone XV. Si est secunda feria pone XVII. // Si tertia feria XVI. Si est quarta feria pone XXV. Si est in quinta feria // pone XI. Si est in sexta feria pone XV. Si est in sabbato pone XVII.

7: Oxford, Bodleian Library MS Digby 29, f. 193r (s. xv<sup>1</sup>)

Incipit Spera P. Collige per numerum quic // -quid inspicere esse proban // -dum. lunge simul // nomen lunam feriamque // diei. Collecta // que simul summam // partire per triginta [trigenis in margin] // quicquid super fuerit // rotum distueret // uterque. Quod re // -tinet vite nec // -non et mortis // ymago. Si super // fuerit vivet. Si // non morietur et in // -fra. Racio spere // Pitagoris quam Appollonius // descripsit ut de quacumque re scire volueris ut pote // de egris qua die egrotam et quota luna fuerit // a convictione uterque ad illum diem et ad // -de nomen egrotantis per haec ut patet in spera et sit in unum // et partire per triginta et quod superfuerit in spera respicias et // si sursum invenies eger vivet si deorsum morietur // et sit de omnibus quesivit in duo requirere debes // computare debes diem lunam per litteras egrotantis. // Si dies dominicus fuerit adde 13. Si dies lune 18. Si // dies

*martis 15. Si dies mercurii 25. Si dies jovis // 41. Si dies veneris 15. Si dies sabbati 26. Si pari // -bus vel imparibus consterit elementis. Nomina pugnantium pars vin // -citur aggredientis. Imparitas autem paritati si societur. Homo // tibi sit certum que defensor superetur.*

8: Oxford, Bodleian Library MS Digby 29, f. 193v (s. xv<sup>1</sup>)

*Hec presens est spera Pictagore quam Appollonius // scripsit Platoni. De quacumque re scire volueris // ut pote de egris. In primis considerare est die in qua decu // -buerit egro vel de preliantibus aut fugitivis vel de // quacumque alia re scire volueris. Primo sume nomen decumbentis // vel preliatoris vel fugitivis vel huius que queris et col // -lige numerum nomine eiusdem una cum numeris diei in quo decu // -buit et fugitivus descensit vel pugnator pugnabat // a vera convictione et adde omnes hos numeros ad // invicem et divide totalem numeri per 30 quociens poteris. Et // si id quod remanserit fuerit sursum spera vivet vel vincet // vel tibi. Et si deorsum quondam numerum eveniet tam. Et eodem modo // facilis est de quacumque re alia quam scire volueris.*

9: London, British Library MS Harley 2274, f. 59v (s. xv)

*Ffyrst counte the letters of the seke man hys name, the age of the mone // that he fel sicke on, and devide it by 30, and what remaynyth loke it in the sper ... // number be in the lower part of the spere the sicke schal dye. If in the over parte he schal ... // and so after he same maner in al other besynes. And in lyke maner of two men ... // which shalle over come. Lyke maner of a man and a woman which schal lyve ... // and of the goyng in a jorney which schal returne agayne. And of al ... // which thou mayst know by the number of the letters and the number of the ... // above showyd. // And counte the daye as he seken ad on and not from none to none but from ... // ... letters of the spere must not be numberyd to ... // two tymes in the countyng of yor numbers.*

10: London, British Library MS Sloane 3526, ff. 6v-7v (s. xv)

*If yow wylt wytte whe // -der a man schal lyve or // dye of any mane malede // take goode kepe on what daye of // [f. 7r] the weke that he toke hys seke // -nes on. Than loke yn the spere the // nowmbres of that day. And ta // -ke the nowmber of hys propure na // -me be the letturs os they ben // wryten in the spere and the age // of*

the mone and put al these // nowmbres to gyddyr. And devy // -de them yn XXX. And than loke // what leves above the XXX. And // loke how ye fynde hem yn the cercle. And yf ye fynde yt yn *the* // over party yt betokynnyth lyve // and yff yt be yn the nether party // yt betokynnyth deyth. And as *other* // [f. 7v] experymentt ye may wyte be thys same spere and on the same wyse.

11: London, British Library MS Royal 17 A XXXII, ff. 3r-v (s. xv)

This is a reule of the ... // Apollyn drew in the wheche a man may wete // of what thyng that he will as of sekenes // money or children whether than shall leve or // dei and of many that shall fight whether // he shall have the victori or not and of hem // that fley away whether thei shall come agen // or not or of what thyng you wilt caste fore // bi this craft folewyng. // Yf thou wilt wete of a seke man take the *lettres* // of his name by the foresaid *numbre* with here // *numbre* *and* the *numbre* of the day that he is seke // on and the age of the mone and the *numbre* of the planete that he felle seke on if thou // maiste bi any wise and put all the *numbres* // togedre and than divyde that *numbre* bi XXX // as long as thou maiste and that *numbre* *that* leveth // loke whether thou fyndist hit in the forseid // spere and if hit be above he shall leve and // be delyvered *and* if hit be benethe he shall dey. [f. 3v] And in the same maner *thou* shalt ... for hem ... // fley away or trayden and if thou fynde // *numbre* above he shall come agayne and if *thou* // fynde the *numbre* benethe he shall dey or // never come agayne. In the same maner // of a man that shall do batell, if the *numbre* be above he shall overcome and if hit be beneth // he shall bey overcome.

12: Oxford, Bodleian Library MS Fairfax 27, f. 69r (s. xiv<sup>in</sup>)

Ceo est la resoun del exspere *que* Pit // -tagoris fist *per* astronomie *per* hunc. // Si vous voilz del mala saner // si il dait vivere ou morere ou a // -cune besoigne comencer. A primez // vous countrez le *numbre* del jour // *quam* il en maladi *et* la *numbre* de // la lune *et* le *numbre* de la *lettres* // de sun non *et* metez ses troys // *numbres* ensemble pus les *partes* // *per* 30 *quai* faiz *cum* vous poez le // *numbre* *que* remaient apre le tren // -time regardez en le exspere si vous // trover de sus si vevera. Si de // -sous si demorra de la maladiy. // Autre si de futifs autre si de // campionez. Autre si de presonner // *per* le *numbre* de son nome *et* // le *numbre* de la // jour *quant* il // fu pris.

13. London, Wellcome Library MS 559, ff. 45r-v

Pur connoistre le roe en le cercle de calkelacion // a comencement la a. b. c. est  
 escrip sur la roe // enviroun *et* apres scheschun *littere* enviroun en un nombre //  
 dedeyns la roe sount 3 lynes depar desuz la milu *et* autrez // 3 pardesoutz la milu.  
 La *prim'* de lez 3 desuz comence par 1 // *et* finit par 9 signesie long' maladie *et* vie  
 apres. La *secund'* // lyne *que* commence par 10 *et* finit par 17 signesie mene  
 maladie // *et* vie apres. La tierce line *que* comence par 19 *et* finit par 27 // signesie  
 court maladie *et* vie apres. Les autrez 3 linez // *que* sount desountz. La *prim'*  
 comence par 5 *et* finit par 12 // signesie long' maladie *et* mort apres. La secunde  
 lyne // *que* comence par 15 *et* finit par 24 signesie mene maladie // *et* mort apres.  
 La tierce line *que* comence par 25 *et* finit // par 30 signesie court maladie *et* hastit  
 mort. Seopt // *ioues* sount en cheschun semaine *et* cheschoun *ioue* ad soun //  
 nombre come la roe fait mencion. Ore a connoistre // *homine* ou *femine* *qui* est  
 malade, countez le nombre *que* est // *escript* apres cheschun *littere* de soun *noun*  
 en la a. b. c. en le // roe *et* le nombre de tantz *ioues* *qui* furent par entre la change  
 // de la lune *et* cele *ioue* qil prist la maladie *et* la [ ... ] // *auxi* la *ioue* qil prist la  
 maladie *et* de ceo fetez un *summe* // [f. 45v] total. *Et* apres retreez de mesine le  
*summe* a tauntz de // de [sic] trentez come poez *et* cela *noumbre* *qui* remaunit  
 apres regar // -dez en la roe, *et* si vous le trouvez par desuz la milu il vivra // *et* si  
 pardesoutz il mourra. // Des champions countez // le *noun* de le *defende'* *qui* est  
 en la a. b. c. sus // -dit *et* le *noumbre* dez *ioues* de la change de la lune *iesque* // a  
 la *ioue* *que* la bataille soit *iouit* *et* countez cele *ioue* mes // -me *et* fetez un *summe*  
 total *et* donc retreez par tauntz // de trent' come poez *et* ceo *que* remaindra  
 regardez en la // roe *et* si vous trouvez de pardesuz venqera lappellous *et* si depar //  
 -desouz il serra vencus. Ore supposonis *que* lappellous out // *noun* Robert, cest a  
 dire en Latyn Robertus, ore le *noumbre* // est 13 de R *et* le *noumbre* de O 9 B 3 E  
 25 R 13 T 8 // U 5 S 9. Le *summe* 85. Ore supposonis *que* le *ioue* est Mardi // de  
 quele *ioue* le *noumbre* est 15 *et* ceux deux *nombres* ser // -rent 100. Ore  
 supposonis *auxi* *que* lage de la lune est // 12 de chaunge tantque a la *ioue*. Ore  
 mettez 12 a la 100 // *et* serra en tout 112. Doncz retreez de cele *summe* lez 30 //  
*que* vous trouvez *et* doncz remaindra puis requirez en // la roe le *noumbre* de 22 si  
 soit desuz *et* doncz vous // avez le iugement.

14: Cambridge, Trinity College Library MS O.9.10, f. 75v (s. xv)

Ceste la esper de Epeleron de di // -ciple Platon' de la vie *et* de la mort *et* de // lez  
maledez *et* de tout la rien dount en // voudras en quer tu troveras ensemble // le  
noubre *que* tu troveras sos totez lez *litterez* // del noun del enferm ou de ky *que*  
soit // si a juste la lune quel ele fin le jour // qil cocha on bataile serra ceo departez  
*par* // XXX taunt fortz come tu porras *et* ceo // *que* remendra ontre trente gerde en le  
cercle si tiel trovez de suz H oniera // ou senkera si de sute murre. Et ceo // *que* tu  
fras *pur* batayle a juste plus la // *summe sur le jour* qils bataileront *et* // departez  
come est avant dit *et* ces sount // les nouns *sur chescoun jour* dismenge. XVI //  
lundy vendridy XV samadi XXV // vel XXI.

15: London, British Library MS Egerton 2852, ff. 111v-112r (s. xiv<sup>med</sup>)

Si vis scire hanc spe // -ram Pictagoriam // *quam* Appologius *et* // Appuleuus exora //  
-vit ex *quacumque* re // scire volueris // vera ut pote // de egris aut // *prelatoribus*  
[sic] aut // *pugnateris* [sic] vel cuis // -libet de qua in // -queris. Collige // [f. 112r]  
*numerus nominis eius ut quota feriam* est. In speram respice. Si *sursum* inveneris //  
*deliberabitur*. Si *deorsum* morietur. De *fugitivis sicut non* invenietur. // De *preliatore*  
si *sursum* vincet si *deorsum* confundetur. *Quod dixi* // *sume quecumque* feria est his  
*ostenditur quamvis*. Si dies Sol // fuerit *sume* 16 *regulares*. Si dies Lune 17. Si dies  
Martis // 16. Si dies si dies Mercurii 05 [?]. Si dies Jovis 14 [?]. Si dies Veneris // 15.  
Si dies Satumi 18.

16: London, British Library MS Harley 267, f. 227r (s. xiv<sup>in</sup>)

*Cum aliquis infirmatur nominetur dies quam* de // -cubuit *egrotus et eodem die*  
*quota fuerit luna et littere nominis egroti computetur per litteras alpha* // -beti *et*  
*quociens poterit numerus remaneri per XXX*. // *Que autem remanserit in figura si*  
*superiorem partem cum ve* // -nit *numerus vivet egrotus si autem in inferiore* // *parte*  
*morietur*. Sic *que de ceteris de quibuscumque* // *inquirere volueris* ... [ends]

17: Cambridge, Peterhouse Library MS 222, f. 47r (s. xiii-xiv)

Spera Apulei Platonici // de morte *et omnibus nego* // -ciis *et quicquid inquirere* //  
*volueris sic computabis per omnis* // *litteras ut puta de nomi* // -ne egri addes *et*  
*lunam* // *quota fuerit die qua decubuit et quotiens potueris*. XXX // *deduces et que*



superaverit // reverteris ad organiolum // infra scriptum *et* si superiori // convenierit  
parti numerus vi // -*tal*is erit. Si inferiori parti moriturum dicis. Sic *et* de // omnibus  
negotiis vel causis // requiris.

18: London, British Library MS Sloane 521, f. 45r (c. 1400)

Hic incipit ratio spere pictagore philosophi quam Appollogus // scripsit de morte *et*  
vita *et* de multis aliis rebus // ut puta de egris *et* de preliatoribus *et* de fugitivis // si  
scire volueris. Sume nomine concubentis fugitivi // vel preliatoris de quo vis scire *et*  
collige ipsius nominis // numerum *et* in quota diei *et* in qua luna *positio* lecto in // -  
cubuerit *et* collige in simul *et* divide per XXX *et* postea // respice in spera *et* vide  
unquam numerus remanens *inveni* // -atur in parte superiori vel parte inferiori. Si sur  
// -sum suberabitur. Si inferius morietur. De fugi // -tivis similiter. Si superius  
revertentur si inferius non. // Et eodem modo de preliatoribus. Si numerus rema // -  
nens superius invenitur vincet si deorsum vincetur.

19: London, British Library MS Sloane 521, f. 45v (c. 1400)

Divide per numerum quicquid cupis esse probandum  
Collectam summam in partes pone trigena si  
lunge simul nomem lunam feriamque diei  
Quod remanet simul vel mortis ymago  
Si supra fuerit vivet morietur *et* infra

20: London, British Library MS Sloane 3229, ff. 6v-7r (s. xv)

Collige per numerum quicquid cupis esse probandum  
lunga simul nomen lunam feriam que diei  
Collecta que una summam partire trigenos  
Quodque superfuerit rotulus discernit uterque  
Quos retinet necnon *et* mortis ymago  
Si supra vivet morietur *et* infra  
Non te despera de Spera Pictagoria

21. London, British Library MS Harley 5311, leaf J (1406)

Spera Apullei Platonis de mor // -te et vita et omnibus negociis // et quicquid  
inquirere volueris // sic computa per omnes ut puta de nomine egri // et adde  
numerum lune quotus fuerit in // principio egritudinis seu in die qua decubu // -erit et  
partire in tot partes equales quociens // poteris per triginta et inde quid residuum //  
fuerit et quere illud in spera. Si in superiori parte // fuerit vivet si in inferiori morietur.  
Si dies // dominicus fuerit adde 14, si lune 18, si martis // 15, si mercurii 25, si jovis  
11, si veneris // 15, si saturni 26. Notaque si litera bis po // -nitur in aliqua dictione  
non debet bis numerari sed semel // ut Willelmus primus V et primus I debent deleri  
sic de ceteris. // Sillaba turva datur quarum si prima sequatur // Indicat esse virum  
per maxima prelia dirum // Si mediam tollis medici non indiget ollis // Et si compestis  
finem non indiget estis.

22: London, British Library MS Royal 12 E XXV, f. 164v (c. 1300)

Pictagoras speram scimus quia scripserat istam  
Suaviter humane comprehendens tempus vite.  
Scrutari corde de re quacumque placebit  
Invenies numeros solers hinc inde notabis  
Vita manet superam mors atque letha deorsum  
Si mens est premium super egrum sume periculum.  
Discute languentis nomen mox hiis elementis.  
Et numerans unius totius colige summam  
Lunam presentis iunges feriam diei.  
Has per tridenos [sic] studio more divide summo  
Qui relinquum fuerit intra speram se tenebit  
Si trinis sursum natali flaminem partum  
Credite si functum letali forte deorsum.

23: London, British Library MS Royal 12 E XXV, f. 164v (c. 1300)

Quicumque scire voluerit de egris vel fugitivis si sint morituri aut non. Quare die in //  
qua cecidit et lunam et nomen eius secundum litteras per triginta dividens. Si  
superius in // -veneris vivet si inferius minime. Si de omni re qualibet unumque et  
diem in navi // -gacione computare debeat. Si fuerit dies sol XV. Si lune XVII. Si  
martis // XV. Si mercurii XXV. Si iovis XII. Si veneris XVI. Si saturnus XVII.

24: London, British Library MS Royal 12 E XXV, ff. 164v-165v (c. 1300)

Petosirus Nephepsi [sic] regi salutem. De hiis que ad homine vite cautelam inventa // finit unum et me mittere pungit. Superem ut tu in hiis per inspiracionem et divinitus // collatam prudenter operando laborans impendas certus quod decumbencium et fugitivorum // et monacorum vel monomacorum vel aliorum similium eventibus non fallacem poteris // accipere presentiam sed argumentum regulare quod hinc scripture subieci si diligenter in // -spexeris consulteris ergo sic facito. Sume nomen decumbentis vel fuge lapsi vel // [f. 165r] de pugnaturi vel alterius cuiuslibet de quo inquiris et collige numerum eius nominis. Deinde lunam // considera quota fuerit ea die qua ager [sic] decumbuit vel fugitivus elapsus et quota futura // sit quod monomacus pungnaturus [sic] est et cetera huius numerum que regularem quis lune // ascriptus numero nominis adiunge. Totam summam que ex hiis conficitur per 29. Divide // et numerum qui superfuerit collige. Inscripta figura quo in loco idem numeris positus sit // inquire. Si eum inveneris in zoemagale et de egro agitur cito convalescet. Si de fugitivo cito revertitur. Si de gladiatore. Si autem in messisue omnia dif // -ficile evenient. Si non in zeomicra [sic] licet prosperum difficilem tamen finit exitum habi // -tura. Quod si in eo loco fuerit in quo tanatos negas inscriptus est eger post longam // infirmitatem morietur. Fugitus diu quesitus non invenietur. Gladiator difficile tamen // superabitur. Eadem in mesetonatos celiora fuerunt et in microstamatos celerrima // ponitur. Exempli gratia Hector et Achilles: luna erat XVII que habet numerum regularem DCCCXCIII. // Achilles nomen habet MCCLXXVI qui simul iuncti faciunt mille et DCCCLXVIII DCC // LXX. Hos partire per 29 et quod superfuit id est XXIII quere in forma regulari et in // -venies illud in eo ubi scribitur zeomegale [sic]. Si id de Hectore feceris inve // -nies residuum numerum in minastanatos [sic] que ponatur numerorum victorem Achillem et Hec // -torem victum absque ambiguitate significat. Est et alius modus si numerus homine // fuerit in ipogeia et numerus hominis in ipergeia periclitabitur homo evadet tamen econtrario si // hominis numerus in ipogeia lune vero in ipergeia sic spere prosperorum adversa continget. // Ut si uterque numeris hominis videlicet et lune in ipogea orizonte fuerit inventus procul // dubio prospera polidentur si ambo infra orizontem esse contigitur adversa omnino provenient.

25: London, British Library MS Royal 12 E XXV, f. 165v (c. 1300)

Spera Apulei Platonis // de morte *et* de omnibus ne // -gocis *et* quicquid inquire // re  
volueris *sic* computas // per omnis litteras de homine ego // *et* addes luna quota  
scilicet // quo die decubuerit *et* feri // -am *et* quotiens poteris de // -duces per 30 *et*  
qui super // erit inveneris. Si superiori parte // evenit vitalis erit. Si // in inferiori  
moriturum dices // *et sic* de omnibus negociis reperies.

26: Working edition of London, Society of Antiquaries Library MS 306 f. 29v (N),  
London, British Library MS Sloane 1620, f. 71r (L) and Oxford, Bodleian Library MS  
Ashmole 340, f. 107r (O) (s. xv<sup>ex</sup>)

Pronosticacio Pictagore summi philosophi secundam speram presentem de vita et  
de morte de egrotantibus et de preliatoribus seu pugillatoribus ac de sponsaliis et  
longis itineribus et magnis operibus incipiendis et negociis aliis exequendis sive de  
quacumque re scire volueris.<sup>516</sup> Cum ergo voluerit aliquis inquirere de aliquo  
egrotante sive bellaturo sive de aliis rebus primo sumat nomen hominis de quo  
inquirere voluerit et computet per omnes litteras nominis sui addendo eiusdem  
numerus quem super easdem litteras inveniet secundum ordinem alphabeti in  
circulo superio in spera rotunda.<sup>517</sup> Postea computet etatem lune secundum  
kalendarium et numerus nominis hominis addatur.<sup>518</sup> Postea predictis numerus  
addatur numerus nominis diei.<sup>519</sup> Quibus numeris sunt collectis dividantur per 30  
quotiens poterint. Et si quid superfluit ultra 30 queratur superius in numeris qui sunt  
in medio circuli.<sup>520</sup> Et si ille ultimus numerus sub magna vita inveniatur felicissimam  
et prosperam pronosticat fortunam rei de qua queritur.<sup>521</sup> Et si in media vita

<sup>516</sup> Pronosticacio] Pronosticacon L; Pronoticia O

Pictagore] Pictagoris O

summi] summum L

ac] ut O

et] ut O

<sup>517</sup> aliquo] alico L

bellaturo] bellatoro O

inquirere] inquerere

computet] computat O

sui] eiusdem N, B

quem] quam O

<sup>518</sup> secundum] primum O

et] om. O

numerus] numeris L

<sup>519</sup> numerus] omnis L

<sup>520</sup> ultra] ultimum O

<sup>521</sup> ultimus] om. L; ulterius O

numerus sub] numerus inventus sub L; numerus sunt O

inveniatur quamvis diu infirmabitur adhuc salvabitur. Si autem in modica vita inveniatur debilem fortunam pronosticat.<sup>522</sup> Et si in magna morte inveniatur mortem et infelicem fortunam pronosticat.<sup>523</sup> Si in media morte inveniatur idem contingere confuerit ut de magna morte dictum est.<sup>524</sup> Si in modica morte inveniatur malam fortunam pronosticat eum et periculi mortis evasione videtur.<sup>525</sup> Vel si latro fuerit et furtum eius cognitum fuerit post cum mortis evadere periculum.<sup>526</sup> Si ultimus numerus fuerit 30 neque plus neque minus queratur ubi invenitur et pronostica de ea sicut de ceteris dictum est.<sup>527</sup>

27: Cambridge, Trinity College Library MS O.2.5, f. 8r (s. xiv)

Hec littera pertinet ad 3 figuras // proximas sequentes in ordine // Spera Apulei et Platonici de mor // -te de vita et de multis aliis nego // -ciis que inquirere volueris quod scilicet // computabis per littera nominum suorum. Si // de egro scire volueris computa nomen // suum per litteras et divide per 30 et adde // ei etatem lune et numerum diei qua // lectum incubuerit et divide divi // -de [sic] per 30 et quicquid remanet // seria infra speram. Si sursum inve // -neris vivet. Si deorsum morietur. // Si autem rogat te inquirere de diebus // ebdomade vade ad primum circulum // et ibi invenies numerum de illis // propunctum et paratum qui dicet tibi quaerit // voluere. Sed numerum lune adde to // -tali numero antequam fiat dicto per 30 ut gradui. Et sicut dictum est de // egro. Sit faciendum de fugitivis et // preliatoribus et peregrinis.

28: Cambridge, Trinity College Library MS O.2.5, f. 10r (s. xiv)

Para [sic] Platonis de morte vel de vita vel omnibus rebus unde inquirere vo // -lueris computabis omnes litteras ad nomine egri pertinentes addas et necnon // ad ipsas pertinentes adiungas lunam ipsius diei in quo egror decubit // et addas. Si die

---

inveniatur] *om.* L

fortunam] fortuniam L; fortuna O

queritur] queratur O

<sup>522</sup> fortunam] fortuniam L

<sup>523</sup> fortunam] fortuniam L

<sup>524</sup> inveniatur idem] idem inveniatur O

confuerit] consumit O

<sup>525</sup> videtur] *om.* L

<sup>526</sup> Vel] *om.* N

et furtum] ut furtis O

cum] tuus L, N

periculum] periculi O

<sup>527</sup> queratur] queretur N

invenitur] invenis L, O

sicut] sit N

*dominica XIII. Si die lune XVIII. Si die martis XV. // Si die mercurie XXV. Si die jovis XI. Si die veneris XV. Si // die sabbati XXVI. Et post divide per XXX quotiens poteris // et residuum invenies in spera. Si supra vivet. Si deorsum // morietur et cetera.*

29: Cambridge, Trinity College Library MS O.2.5, ff. 10v-11r (s. xiv)

*Incipit ratio spere putagis philosophe quod Appollonius scripsit ut de quacumque // re scire volueris ut puta de preliatoribus aut de fugitivis aut de quacumque // re scire volueris. Sume nomen concubentis vel fugitivis vel pugnatoris vel // de quoque vel cuiuslibet de quo inquerere voluere. Sume nomen illius de quo vis // scire et collige litteras nominis eius et quota feria fuerit. Hoc est si dies // dominica 15. Si dies lune non. Si dies martis 15. Si dies mercurii 20. Si // dies jovis 11. Si dies veneris 15. Si dies sabati 16 et luna quota // quacumque hoc est si prima dies lune capias unum. Si secunda capias 2 // et sit deinceps diebus lune et collige numerum illum in simul et divide per 30 // [f. 11r] et quod super 30 remanserit in spera respice. Si sursum inveneris liberabitur // si deorsum morietur. De fugitivis similiter si superius revertetur si cum quis // quesitus non inveniatur. De preliatoribus si sursum vivet si deorsum non.*

30: Cambridge, Trinity College Library MS O.2.5, f. 11v (s. xiv)

*Si vis scire per tabulam Pictatoris quis morietur primus de viro et muli // -ere sua vel una istorum est mortuus quis eorum. Accipe numerum litterarum // suorum nominum et divide per novem et si par manserit vir primo morietur. Si // impar mulier et hoc facies per numerum mediatum electorum. Et si vis scire // per eandem tabulam si homo morietur de infirmitate sua vel non // accipe diem in quo primo se tenet ad lectum suum et seria quota // sit et adde numerum assignatum pro illa die. Deinde accipe numerum // sui nominis egri quantum numerum cum mediatum elementis et divide per 30 // et seria que remanet et si sursum invenias vivet. Si deorsum // morietur. Eodem modo facias de preliato et fugienti. Ita littera // pertinet ad figuram proximam precedens.*

31: Cambridge, Trinity College Library MS O.2.5, f. 192v (s. xiv)

*Ista spera docet de quacumque re scire volueris de egris de fugitivis de // preliatoribus. Sume nomen egri vel fugitive vel preliatoris et collige numerum litterarum // eius sicut patet in spera et etatem lune et numerum ferie quo decubuit*

// *videlicet* si sit *prima* feria adde 19. Si *secunda* 16. Si *tertia* 15. Si *quarta* 25. // Si *quinta* 21. Si *sexta* 17. Si *septia* 17 *et totum simul aggrega // et divide quociens poteris per 30 et quod remanet videas in parti // pote equipollentis*. Si *sursum inveneris* *egro convalescit*. *Preliator* vin // -cet. *Fugitivus* reveniet. Si *deorsum morietur* *eger*. // *Preliator vincetur*.

32: Cambridge, Trinity College Library MS O.2.45, p. 1 (s. xiii<sup>2</sup>)

Vide foramen spere pictagore *quam* Apol // -lonius *descripsit*. De *quacumque* re scire *volueris // sive de egris sive de preliatoribus sive de // fugitivis sive de quacumque* re *inquiris. // Sume nomen egri vel fugitivi vel pre // -liatoris vel cuiuscumque* rei de *qua inquiris // et collige numerum litterarum nominis // eius et vide quota est feria et quota est // luna et copula insimul et divide // per triginta et quid remanserit in ipsa // respice et si sursum inveneris numerus // vitalis est*. Si *deorsum* *mortis presagium*. // Si dies Solis XVI. Si Lune XVIII. Si Mar // -tis XV. Si Mercurii XXV. Si Jovis XI. Si Veneris // XVI. Si Saturni XXVI.

33: London, British Library MS Royal 12 G IV, f. 160r (s. xiv<sup>ex</sup>)

Collige *per numeros quicquid cupis esse probandum*  
 Junge *simul nomen feria lunam que diei*  
 Collectamque *una summam partire trigenos*  
 Quodque *superfuerit rotulus discemit uterque*  
 Quos retinet vite *necnon et mortis ymago*  
 Si *supra fuerit vivet morietur et infra*

## Appendix II

### Working lists of Manuscripts containing the 'Sphere of Life and Death'

#### 1. Manuscripts of English provenance, c. 1200 – c. 1500

##### Boston

Countway Medical Library  
MS 7 (20) f. 69v (s. xiv)

##### Cambridge

Gonville and Caius College Library  
MS 225/240 f. 143r (s. xiii<sup>ex</sup>)  
MS 336/725 ff. 63v-66v (s. xv)

St. John's College Library  
MS 37 f. 53v (s. xv)

Trinity College Library  
MS O.1.57 - 'Sphere' not extant - (s.xv<sup>1</sup>)  
MS O.2.5 ff. 8r and 10r-11r (s. xiv)  
MS O.2.45 f. 1r (s. xiii<sup>2</sup>)  
MS O.9.10 f. 75v (s. xv)

University Library  
MS Peterhouse 222 f. 32r (s. xiii-xiv)

##### Durham

University Library  
MS Cosin V.iv.7 ff. 5v-10v (s. xv)

##### London

##### British Library

MS Additional 4698 f. 2r (s. xv<sup>ex</sup>)  
MS Additional 10362 ff. 109r-109v and 113r (s. xiv)  
MS Additional 15236 ff. 108r-108v (s. xiii-xiv)  
MS Cotton Vespasian E. vii f. 23v (s. xv)  
MS Egerton 843 ff. 31v-32r (s. xiii)  
MS Egerton 2852 f. 111v (s. xiv<sup>med</sup>)  
MS Harley 267 ff. 226v-227r (s. xiv<sup>in</sup>)  
MS Harley 531 – 'Sphere' not extant (before 1474)  
MS Harley 2274 f. 59v (s. xiv-xv)  
MS Harley 3383 f. 85 (s. xv)  
MS Harley 3719 ff. 175v-176v (s. xv)  
MS Harley 5311 f. I (1406)  
MS Royal 7 D XXV f. 75r (s. xii<sup>ex</sup>)  
MS Royal 12 E XXV ff. 164v-165v (c. 1300)  
MS Royal 12 G IV f. 160r (s. xiv<sup>ex</sup>)  
MS Royal 17 A XXXII f. 2v (s. xv)



MS Sloane 389 ff. 93r-95v (s. xv)  
 MS Sloane 521 ff. 45r-45v (s. xiv)  
 MS Sloane 1620 ff. 65r-66v and 70v-71r (s. xv)  
 MS Sloane 3229 ff. 6v-7r (s. xv)  
 MS Sloane 3526 ff. 6v-7v (s. xv)

Society of Antiquaries Library

MS 306 ff. 29v-30r (s. xv<sup>ex</sup>)

University College Library

MS Angl. 6 ff. 33v-35v, 11r-11v and 36r-36v (s. xv<sup>2</sup>)

Wellcome Library

MS 559 ff. 46r-47r (s. xv<sup>med</sup>)

Madrid

Biblioteca Nacional de España

MS 10016 ff. 3r and 85v (s. xiii<sup>in</sup>)

New York

Columbia University Library

MS Plimpton 260 ff. 5r-13v (s. xv<sup>in</sup>)

Oxford

Bodleian Library

MS Ashmole 189 ff. 72r-83v (s. xv)  
 MS Ashmole 340, part IV, f. 107r (s. xv<sup>ex</sup>)  
 MS Ashmole 391, part V, f. 8r (s. xiv)  
 MS Ashmole 396 ff. 200r-203r (s. xv)  
 MS Ashmole 789 f. 367r (s. xv<sup>in</sup>)  
 MS Bodleian 26 (Bernard 1871) ff. 207r and 216v (s. xiii-xiv)  
 MS Bodleian 177 (Bernard 2072) ff. 1r-1v and 22r (s. xiv<sup>ex</sup>)  
 MS Digby 29 ff. 193r-194r (s. xv)  
 MS Digby 46 ff. 106v-107v (s. xiv<sup>med</sup>)  
 MS Digby 58 f. 1v (s. xiv)  
 MS Digby 88 f. 15r (s. xv)  
 MS Fairfax 27 f. 69r (s. xiv<sup>in</sup>)  
 MS Lyell 36 f. 33r (1476)  
 MS Rawlinson C. 506 ff. 15v-16r (s. xv)  
 MS Rawlinson D. 893 ff. 34r-34v (s. xiv)  
 MS Savile 39 f. 10v (s. xiv<sup>ex</sup>)

San Marino, CA

Henry E. Huntington Library

MS 64 (Phillipps 6883) ff. 14v-16v (s. xv)

York

Minster Library

MS XVI.E.32 f. 1v (s. xv)

Missing manuscript

Due to a late fourteenth century catalogue of the library of the Austin Friars at York, we know that John Erghome, canon and regent master at York in the second half of the fourteenth century, owned a manuscript containing a 'Sphere', which was then bequeathed to the Friars. This manuscript has not been identified, and is presumed lost.

2. Manuscripts containing whole and partial 'Spheres' and/or 'Sphere' texts of European provenance, c. 800 – c. 1700<sup>528</sup>

Augsburg

Staats- und Stadtbibliothek

Quarto Cod. 149, ff. 47v-48r (s. xvi)

Barcelona

Archivo de la Corona de Aragon

MS Ripoll 59, f. 194v (s. xi<sup>in</sup>)

Biblioteca Nacional de Catalunya

MS 634, f. 28r (s. xv<sup>1</sup>)

MS 1452, f. 57v (s. xiv-xv)

Berlin

Staatsbibliothek

MS Phillipps 1651, f. 212v (s. x)

MS Phillipps 1790, f. 40v (s. ix<sup>1</sup>)

MS Phillipps 1833, ff. 53v-54r (c. 1000)

Bern

Burgerbibliothek

MS 178, ff. 1r-v (s. ix)

MS 425, ff. 78r-v (s. ix<sup>ex</sup>)

Boston, Ma.

Countway Medical Library

MS 7 (20), f. 69v (s. xiv)

Burgo de Osma

Archivo de la Catedral

MS 7, ff. 104v-105r (s. xi-xii)

Cambridge

Gonville and Caius College Library

MS 225/240, pp. 143-144 (s. xiii<sup>ex</sup>)

MS 336/725, ff. 63v-66v (s. xv)

St. John's College Library

MS 37, f. 53v (s. xv-xvi)

Trinity College Library

MS O.1.46, f. 166r (s. xvi)

<sup>528</sup> Many of these manuscripts have not been examined in person, and I owe a debt to David Juste for providing me with his working handlist of 'Sphere' manuscripts.

MS O.2.5, ff. 8r and 10r-11r (s. xiv)  
 MS O.2.45, f. 1r (s. xiii<sup>2</sup>)  
 MS O.7.41, f. 1r (s. xii<sup>in</sup>)  
 MS O.9.10, f. 75v (s. xv)

University Library

MS Additional 4543, f. 2v (s. x)  
 MS Peterhouse 222, f. 32r (s. xiii-xiv)

Chantilly

Musée Conde

MS 322 (641), ff. 140r-141r (s. xiv<sup>ex</sup>)

Charleville-Mézières

Bibliothèque Municipale

MS 190 12, f. 143v (unknown)

Chartres

Bibliothèque Municipale

MS 113, f. 99r (s. ix)

Cologne

Erzbischöflichen Diözesan- und Dombibl.,

MS 83 II, f. 218v (c. 805)

Darmstadt

Hessische Landes-und Hochschulbibliothek

MS 45, f. 175r-176r (s. xii<sup>1</sup>)

MS 815, ff. 57r-v (s. xii<sup>ex</sup>)

Dijon

Bibliothèque Municipale

MS 448, ff. 74r and 93v (s. xi)

Dresden

Sächsische Landesbibliothek

MS 100, f. 203v (1487-1488)

Dublin

Royal College of Surgeons in Ireland

MS 97, f. 404v (s. xv<sup>in</sup>)

Durham

University Library

MS Cosin V. iv. 7, ff. 5v-10v (s. xv-xvi)

EngelbergStiftsbibliothek

Cod. 45, f. 157r (unknown)

ErfurtUniversitäts- und Forschungsbibliothek

MS Amplon F. 38, f. 1v (s. xiii<sup>1</sup>)

MS Amplon. Q. 386, ff. 159v-160v (s. xiv<sup>2</sup>)

ErlangenUniversitätsbibliothek

MS 544, f. 180r (s. xv<sup>2</sup>)

MS 674, ff. 151r-v (s. xv)

MS 844, ff. 1r-2r (s. xvii)

FlorenceBiblioteca Medicea Laurenziana

MS Laur. Pluteus 73, f. 23r (s. xiii)

MS Plut. 38.24, ff. 174v-175v (s. x-xi) - 'Sphere' missing

MS Plut. 89 sup. 51, f. 1r (s. xi)

Biblioteca Nazionale Centrale

MS Convent Soppressi J V 4 (San Marco 192), ff. 78v-79r (s. xiv)

Bibl. Riccardiana

MS 327, f. ? (s. xiv)

MS 993, ff. 1v and 24r (s. xiii)

FreiburgUniversitätsbibliothek

MS 57, ff. 12r and 138r (s. xv<sup>in</sup>)

FuldaHessische Landesbibliothek

MS B 2, f. 31r (1106)

GhentUniversiteitsbibliotheek

MS 92, ff. 26r and 31r (s. xii<sup>in</sup>)

GothaForschungsbibliothek

MS LB 11125, f. 28v (unknown)

Graz

Universitätsbibliothek  
 MS 68, f. 1v (s. xii)  
 MS 427, f. 1 (s. xv)

#### The Hague

Koninklijke Bibliotheek  
 MS Y. 407, f. 33 (s. xiii<sup>in</sup>)

#### Hanover

Niedersächsische Landesbibliothek  
 MS IV 339, f. 220r (s. xiv-xv)

#### Heidelberg

Universitätsbibliothek  
 Cod. Pal. Germ. 832, ff. 130r-135r (1491)

#### Herrnstein

Gräfllich Nesselrodesche Bibliothek  
 Hertensis 192, f. 91r (s. xi-xii)

#### Ivrea

Biblioteca Capitolare  
 MS 19, ff. 10r-11r (s. x)

#### Kraków

Biblioteka Jagiellońska  
 MS 793, f. 86r (1458-1459)

#### Laon

Bibliothèque Municipale  
 MS 407, ff. 136v-137r (s. xi<sup>2</sup>)

#### Leiden

Rijksuniversiteit Bibliotheek  
 MS Scal. 38, ff. 4v-6r and 33v (s. xi<sup>1</sup>)  
 MS Voss. lat. O. 92, ff. 79r-v (s. x<sup>in</sup>)

#### Liège

Bibliothèque Université  
 MS 285, ff. 45r and 63r (s. xii)

#### London

British Library  
 MS Additional 4698, f. 2r (c. 1500)

MS Additional 10362, ff. 109r-109v and 113r (s. xiv)  
 MS Additional 15236, f. 108r0v (s. xiii-xiv)  
 MS Arundel 295, ff. 265r (s. xiv)  
 MS Arundel 339, ff. 68r-v (s. xiii<sup>in</sup>)  
 MS Cotton Caligula A XV, f. 125v (1073)  
 MS Cotton Tiberius C I, f. 7v (s. xii<sup>1</sup>)  
 MS Cotton Tiberius C VI, ff. 6v-7v (s. xi)  
 MS Cotton Vespasian E VII, f. 23v (s. xv)  
 MS Cotton Vitellius E XVIII, f. 14v (s. xi<sup>2</sup>)  
 MS Egerton 821, ff. 15r-v (c. 1175)  
 MS Egerton 843, ff. 31v-32r (s. xiii)  
 MS Egerton 2852, ff. 111r-v (s. xiv<sup>med</sup>)  
 MS Harley 267, ff. 226v-227r (s. xiv<sup>in</sup>)  
 MS Harley 2274, f. 59v (s. xiv-xv)  
 MS Harley 3017, f. 58r (s. ix)  
 MS Harley 3383, f. 85 (s. xv)  
 MS Harley 3667, ff. 4v-5r (s. xii<sup>in</sup>)  
 MS Harley 3719, ff. 175v-176v (s. xiv-xv)  
 MS Harley 5311, leaf J (1406)  
 MS Harley 6812, f. 280v (s. xvi)  
 MS Royal 12 E XXV, ff. 164v-165v (c. 1300)  
 MS Royal 12 G IV, f. 160r (s. xiv<sup>ex</sup>)  
 MS Royal 13 A XI, ff. 28r-29v (s. xii<sup>in</sup>)  
 MS Royal 17 A XXXII, f. 2v (s. xv)  
 MS Royal 7 D XXV, f. 75r (s. xii<sup>ex</sup>)  
 MS Sloane 121, f. 120v (s. xvi)  
 MS Sloane 389, ff. 93r-95v (s. xv)  
 MS Sloane 416, f. 105r (s. xv<sup>2</sup>)  
 MS Sloane 475, ff. 132v-133v (s. xi<sup>ex</sup>-xii<sup>in</sup>)  
 MS Sloane 521, f. 45v (s. xiv)  
 MS Sloane 1620, ff. 65r-66v and 70v-71r (s. xv)  
 MS Sloane 3229, ff. 6v-7r (s. xv)  
 MS Sloane 3580A, ff. 3r-6r and 234r-v (c. 1580)  
 MS Sloane 3690, ff. 96r-98r (c. 1580)

Lambeth Palace Library

MS 562, f. 17v (s. xvi)

Society of Antiquaries Library

MS 306, ff. 29v-30r (s. xv<sup>ex</sup>)

University College Library

MS Angl. 6, ff. 33v-35v, 11r-11v and 36r-36v (s. xv<sup>2</sup>)

Wellcome Library

MS 21, f. 7r (s. xii<sup>in</sup>)  
 MS 240, f. 55r (s. xvii)  
 MS 364, ff. 21v-23r (s. xv<sup>ex</sup>)  
 MS 517, f. 99v (s. xv<sup>ex</sup>)  
 MS 559, ff. 45r-v and 47r (s. xv<sup>med</sup>)  
 MS 562, f. 62r (s. xv<sup>ex</sup>)

Los AngelesJohn Paul Getty MuseumMS Ludwig XII.5, ff. 46r-47r (s. xii<sup>in</sup>)MadridBiblioteca Nacional de España

MS 19, ff. 87v-88r (s. xi-xii)

MS 10016, ff. 3r and 85v (s. xiii<sup>in</sup>)MilanBiblioteca AmbrosianaMS Q. 51 sup., f. 24r (s. xi<sup>ex</sup>-xii)ModenaBiblioteca Estense UniversitariaMS lat. 697, f. 9r (s. xv<sup>1</sup>)MontpellierBibliothèque Interuniversitaire Médecine

MS 48, f. 3v (s. xi)

MunichDie Bayerische Staatsbibliothek

Cgm 328, f. 163v (s. xv-xvi)

Clm 125, f. 310r (s. xv<sup>ex</sup>)

Clm 276, ff. 82r-82v (s. xiv)

Clm 667, f. 42r-42v (s. xv<sup>ex</sup>)Clm 671, f. 88r (s. xv<sup>in</sup>)Clm 677, f. 97v (s. xiii<sup>ex</sup>-xiv<sup>in</sup>)Clm 759, f. 112v (s. xiv<sup>in</sup>)

Clm 2841, ff. 225r-227r (s. xv-xvi)

Clm 4503, f. 23v (s. xi)

Clm 4643, f. 99v (s. xii<sup>ex</sup>- s. xiii<sup>1</sup>)Clm 5640, f. 74v (s. xiv<sup>2</sup>)Clm 8515a, pp. 251-254 (s. xviii<sup>1</sup>)Clm 10270, f. 20v-21v (s. xii<sup>in</sup>)

Clm 14111, f. 214v (s. xv)

Clm 14727, ff. 31v-32r (s. xiv)

Clm 17030, ff. 33v-34v (s. xiv<sup>in</sup>)

Clm 17403, f. 1r (s. xiii)

Clm 22307, f. 194r-195r (s. xi-xii)

New YorkColumbia University LibraryMS Plimpton 260, ff. 5r-13v (s. xiv<sup>in</sup>)



NurembergStadtbibliothekMS Cent. V 100, f. 110v (s. xiv<sup>1</sup>)

MS Cent. VI 49, f. 83v (s. xiv)

OrléansBibliothèque Municipale

MS 276, p. 129 (s. xi)

OxfordBodleian Library

MS Ashmole 189, ff. 72r-83v (s. xv)

MS Ashmole 340, part IV, ff. 107r-108r (c. 1500)

MS Ashmole 391, part V, f. 8r (s. xiv)

MS Ashmole 396, f. 200r-203r (s. xv)

MS Ashmole 789, f. 367r (s. xvi<sup>n</sup>)

MS Bodley 26 (Bernard 1871), ff. 207r + 216v (s. xiii-xiv)

MS Bodley 177 (Bernard 2072), f. 1r-1v and 22r (s. xiv<sup>ex</sup>)

MS Bodley 309, f. 148v (1075)

MS Bodley 579, ff. 49v-50r (s. x)

MS Canon. Misc. 307, f. 62v (s. xiv<sup>ex</sup>)MS Digby 29, ff. 193r-194r (s. xv<sup>1</sup>)

MS Digby 46, ff. 107r-v (c. 1375)

MS Digby 58, f. 1v (s. xiv)

MS Digby 88, f. 15r (s. xv)

MS Fairfax 27, f. 69r (s. xiv<sup>in</sup>)

MS Lyell 36, f. 32v (1476)

MS Rawlinson C 506, ff. 15v-16r (s. xvi)

MS Rawlinson D 893, ff. 34r-v (s. xiv)

MS Savile 39, f. 10v (s. xiv<sup>ex</sup>)St. John's College Library

MS 17, ff. 8r and f. 40v-41r (c. 1110)

ParisBibliothèque Nationale de France

MS fr. 2485, ff. 16r-16v (s. xiv)

MS lat. 528, ff. 152v-153r (s. ix-x)

MS lat. 5239, ff. 166v-167r (s. x<sup>2</sup>)

MS lat. 6952, ff. 152v-153v (s. xv)

MS lat. 7299A, ff. 33v, 35v and 36r (s. xi-xii)

MS lat. 7337, pp. 175-177 (s. xv)

MS lat. 7349A, f. 1r (s. xv)

MS lat. 7351, ff. 12r-12v (s. xiv)

MS lat. 7418, ff. 89v-90v, 90v-91r and 91r (s. xiii-xiv)

MS lat. 7434, f. 49r (s. xiii)

MS lat. 7458, f. 66v (s. xvi)

MS lat. 7486, ff. 66v-67v (s. xiv)

MS lat. 7562, f. 95v (s. xii-xiii)

MS lat. 8654B, f. 7r (s. xiv)

MS lat. 8663, f. 57v (c. 1000)  
 MS lat. 11135, f. 1r (s. xv)  
 MS lat. 11411, f. 99r (s. ix)  
 MS lat. 12999, f. 7v (s. xii)  
 MS lat. 14068, ff. 33v and 38v-39r (s. xv)  
 MS lat. 14070, f. 72v (s. xiii)  
 MS lat. 16658, f. 137v (s. xiii<sup>med</sup>)  
 MS lat. 17868, ff. 13r-13v (s. x<sup>ex</sup>)  
 MS lat. 18505, ff. 70v-71r (s. xv<sup>2</sup>)  
 MS nouv. acq. lat. 1616, f. 7v (s. ix<sup>med</sup>)

### Prague

Archiv Pražského Hradu  
 MS N. LIII (1577), ff. 69r-69v (s. xv)

Národní knihovna České republiky  
 MS 1F 35 (267), f. 60v (1426-1431)  
 MS XI C 2(2027), f. 86 (1420-1440)

### Rostock

Universitätsbibliothek  
 MS math-phys 54, ff. 166v-170r (s. xv<sup>ex</sup>)

### Salzburg

Stiftsbibliothek St. Peter  
 MS B IX 14, f. 2v (1429)

### San Marino, Ca.

Henry E. Huntington Library  
 HM 64 (Phillipps 6883), ff. 14v-16v (s. xv-xvi)

### St. Gall

Stiftsbibliothek  
 MS 752, f. 82r (s. ix<sup>2</sup>)

### St. Petersburg

Nazjonalnaja Biblioteka  
 MS Qu. V.I.34, f. 88r (s. x-xi)

### Strasbourg

Bibliothèque Nationale et Universitaire  
 MS 336, f. 89r (s. xv)

### Troyes

Bibliothèque Municipale  
 MS 1558, f. 31v (s. xii<sup>med</sup>)

Vatican CityBiblioteca Apostolica Vaticana

MS Borghese 247, f. 21v (1315)  
 MS Palat. lat. 176, ff. 1r-1v, 4v and 162v (s. x)  
 MS Palat. lat. 485, f. 14 (s. ix)  
 MS Palat. lat. 1367, ff. 113r-114r (s. xv<sup>med</sup>)  
 MS Palat. lat. 1370, f. 51v s. (xv<sup>2</sup>)  
 MS Palat. lat. 1375, f. 44r (1482-88)  
 MS Palat. lat. 1449, f. 146v (c. 810)  
 MS Palat. lat. 1452, ff. 240r-241v (s. xv)  
 MS Reg. lat. 733, ff. 47v-48v (s. xi)  
 MS Reg. lat. 1263, ff. 76v and 91r (s. xi)  
 MS Reg. lat. 1324, ff. 42r-42v, 49v-50r and 68r (s. xv)  
 MS Reg. lat. 1625, ff. 73v-74v (s. ix)  
 MS Rossi 247, f. 52v (s. ix)  
 MS Urb. lat. 290, f. 2v-3v (s. xi<sup>ex</sup>)  
 MS Vat. lat. 3101, f. 40v (1077)  
 MS Vat. lat. 3105, f. 6r (s. xiv)  
 MS Vat. lat. 3121, f. 57v (s. xiv<sup>ex</sup>-xv<sup>in</sup>)

VeniceBiblioteca Nazionale Marciana

MS lat. VI.261 (3648), ff. 20v-27v (s. xvi<sup>2</sup>)  
 MS lat. VIII.33, ff. 124v-125v (s. xv)  
 MS lat. VIII.79 (3477), f. 23r (s. xi-xii)

VercelliArchivo Capitolare

MS 177, f. 143r (s. x)

VeronaBiblioteca Capitolare

MS CCXCI (400), ff. 16r-16v (s. xv)

ViennaÖsterreichische Nationalbibliothek

MS 67, f. 174r (s. xii)  
 MS 2296, f. 99v (s. xiii)  
 MS 2532, ff. 1r-2v (s. xii)  
 MS 5327, ff. 51r-54v (s. xv<sup>2</sup>)

YorkMinster Library

MS XVI.E.32, f. 1v (s. xv)

ZürichZentralbibliothek

MS C. 62, ff. 211v, 223r and 236r-236v (s. x-xi)

# Figures

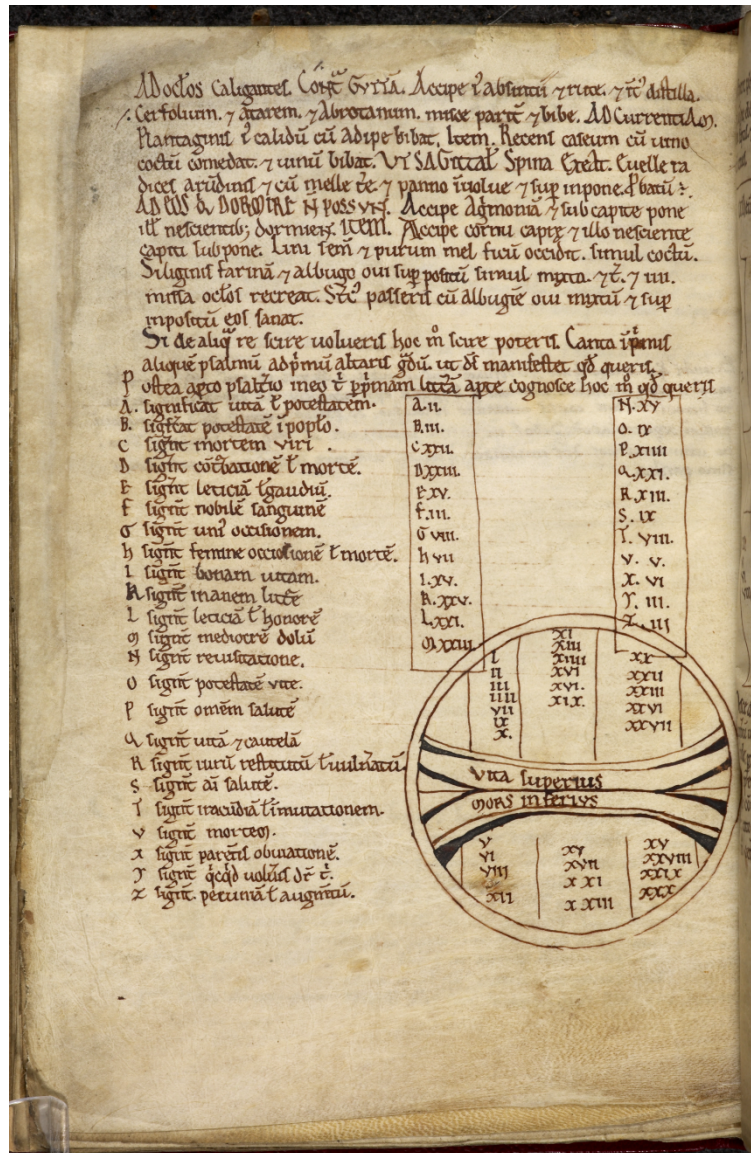


Figure 1

London, BL MS Royal 7 D XXV, f. 75v

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Figure 2

Oxford, Bodleian Library MS Ashmole 391, part V, f. 8r





### Figure 3

Oxford, Bodleian Library MS Ashmole 789 f. 367r





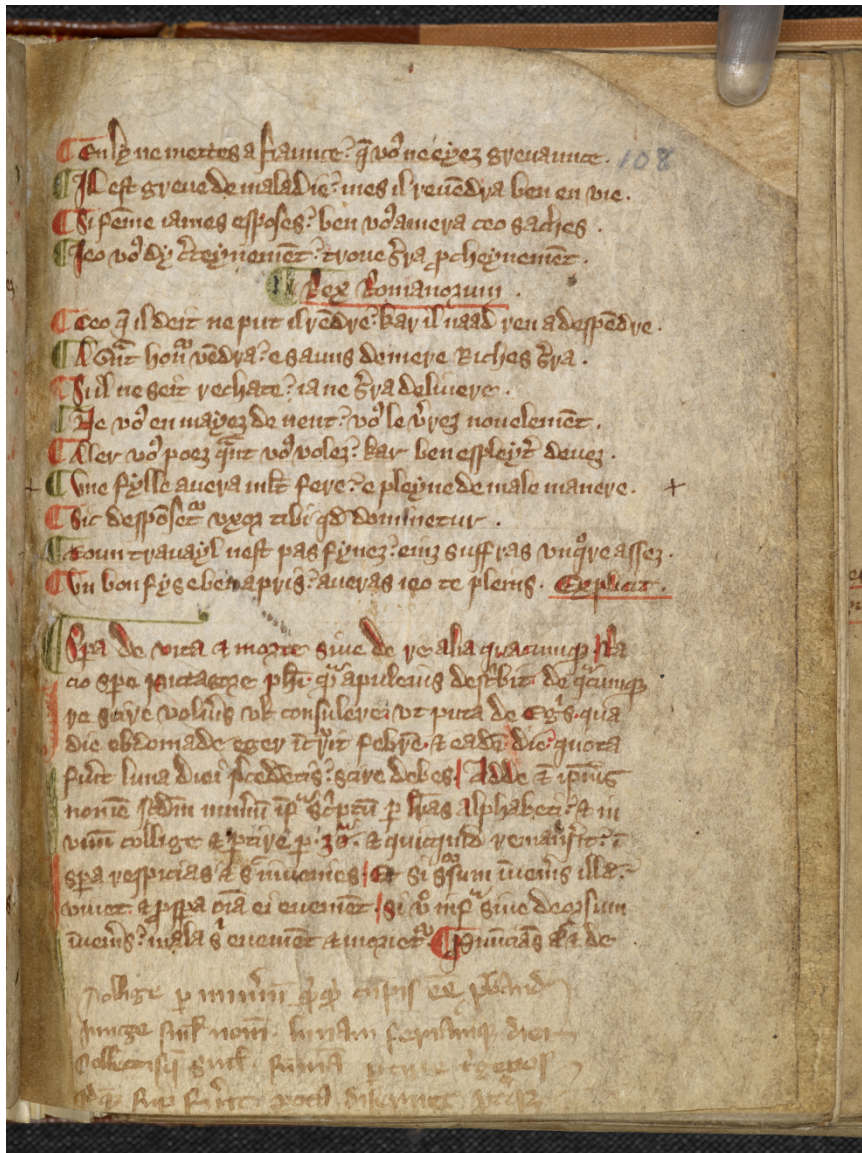


Figure 5a

London, BL MS Additional 15236, ff. 108r

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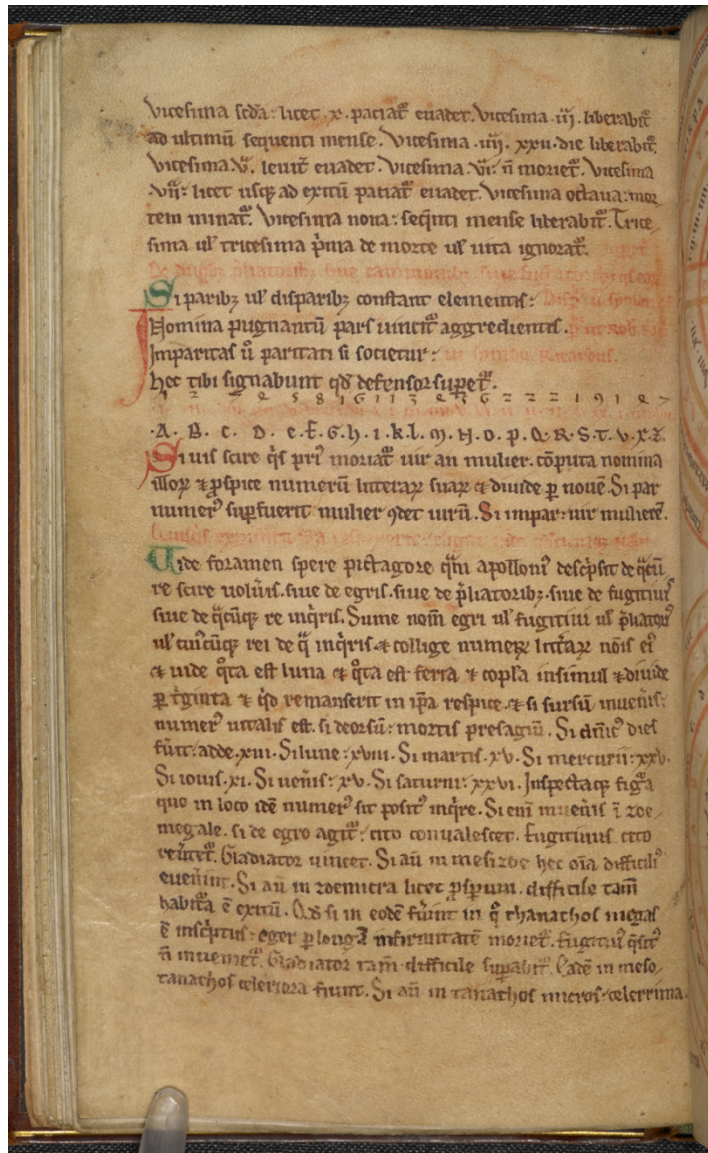


Figure 6a

London, BL MS Egerton 843, f. 31v

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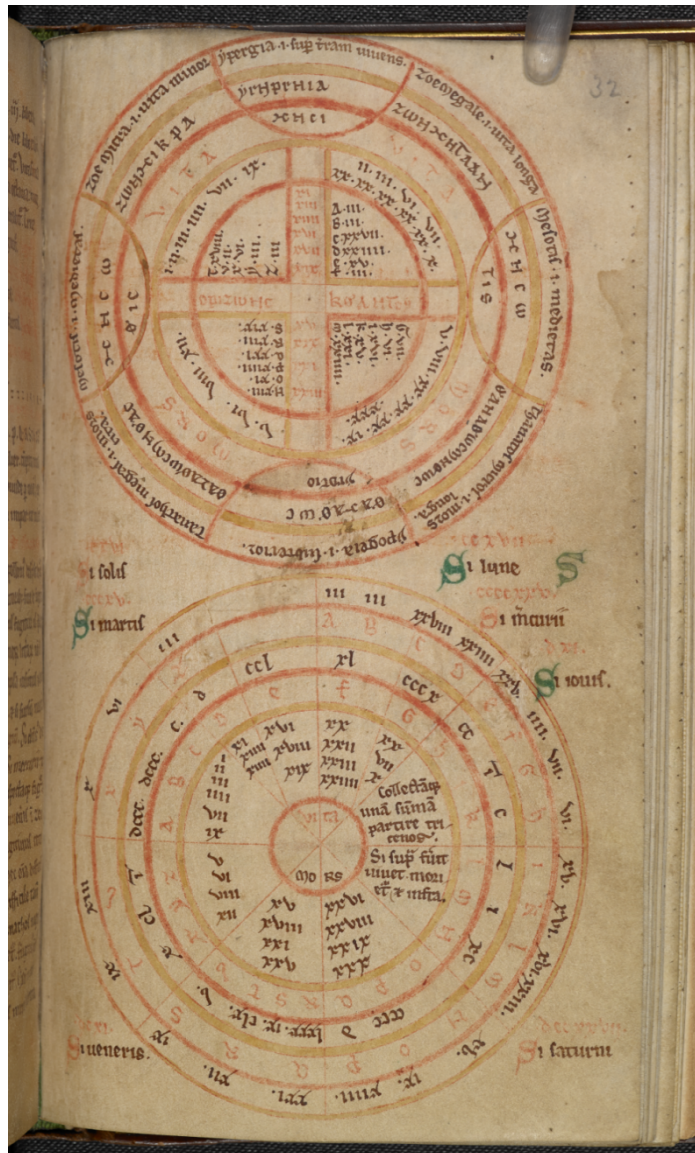


Figure 6b

London, BL MS Egerton 843, f. 31v

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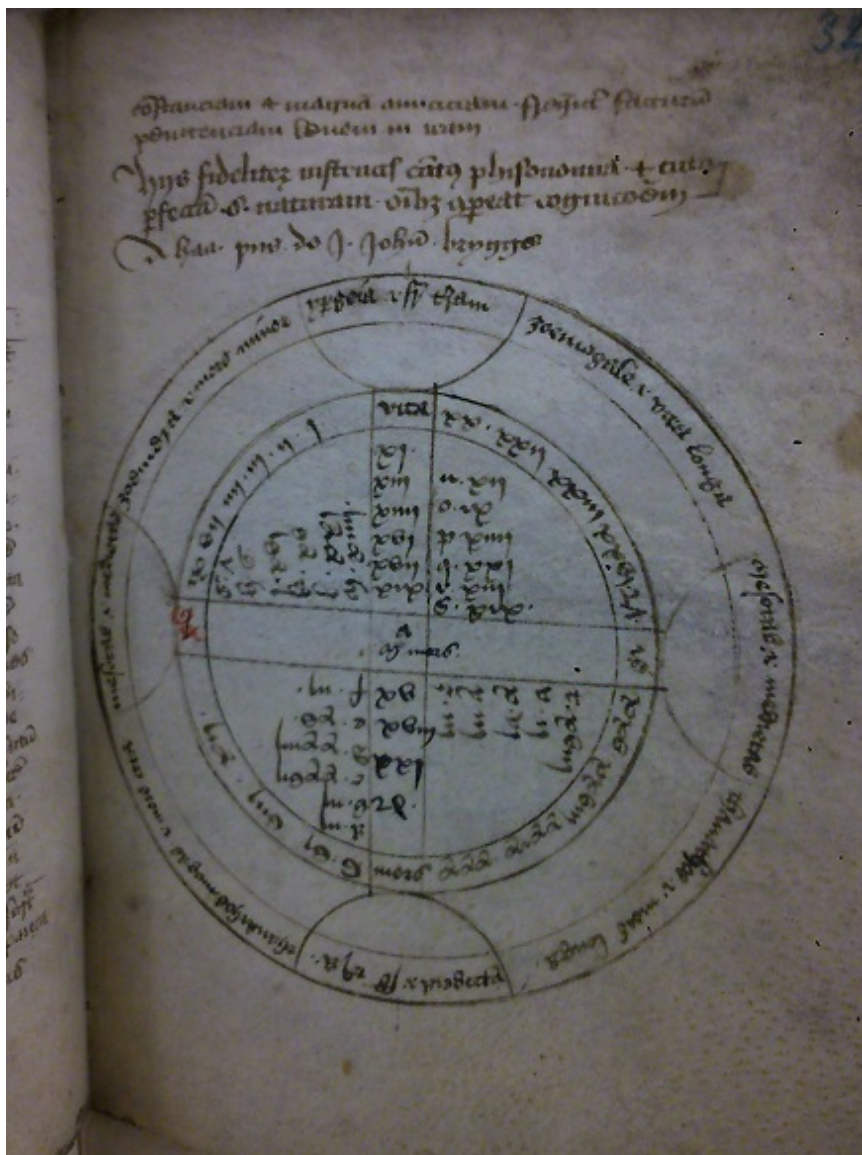


Figure 7a

Oxford, Bodleian Library MS Rawlinson D 893, f. 34r



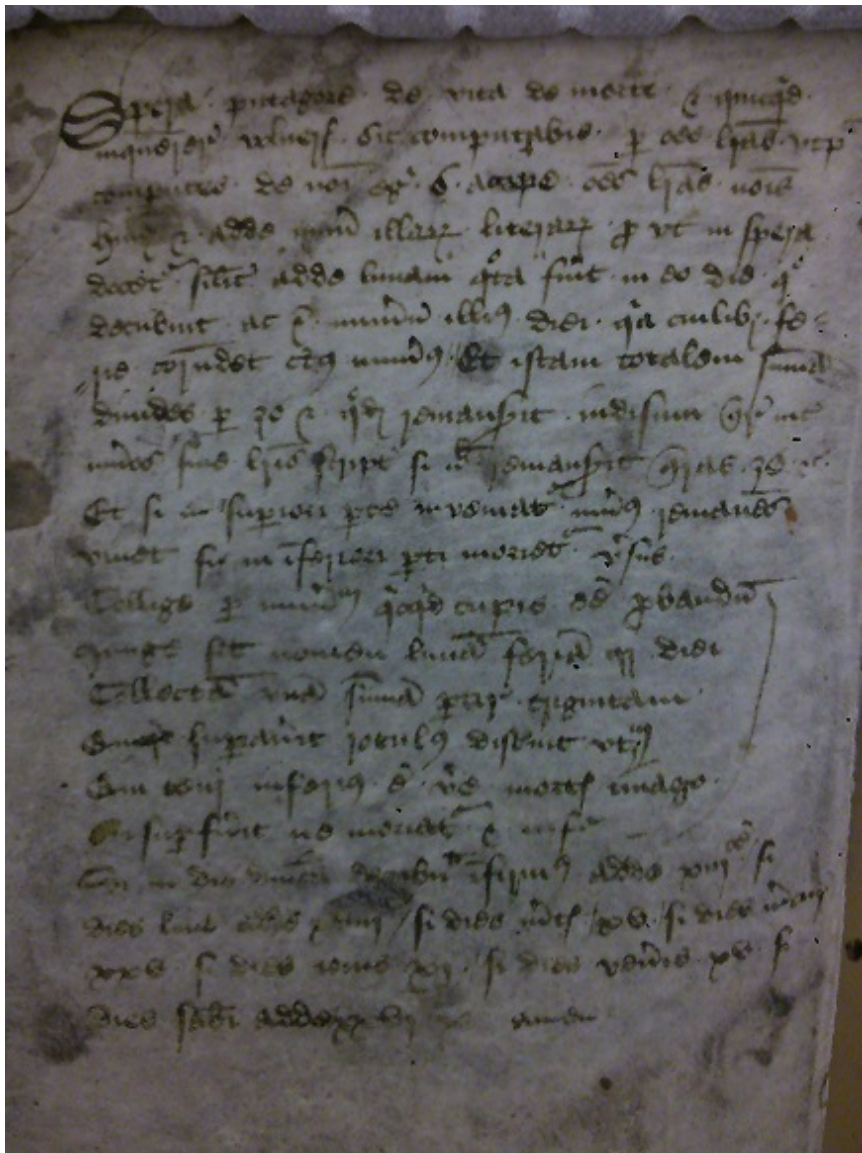


Figure 7b

Oxford, Bodleian Library MS Rawlinson D 893, f. 34v

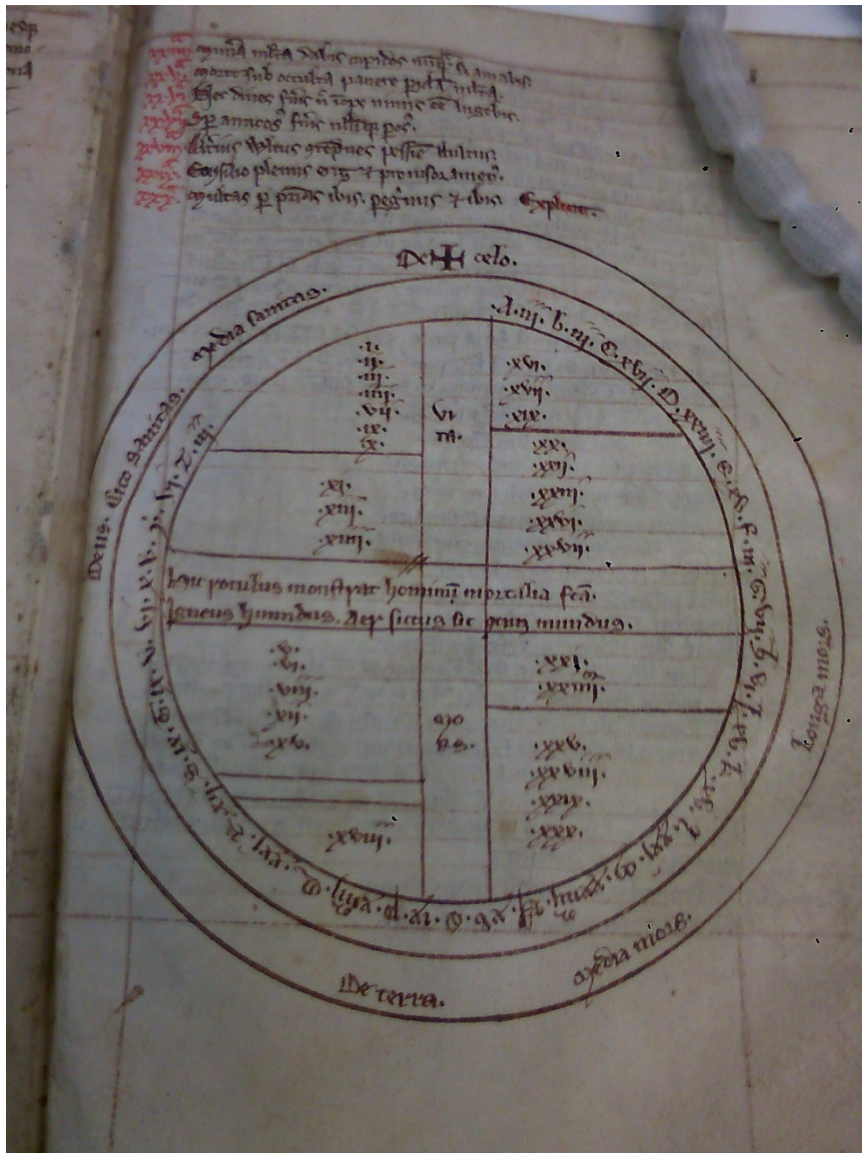
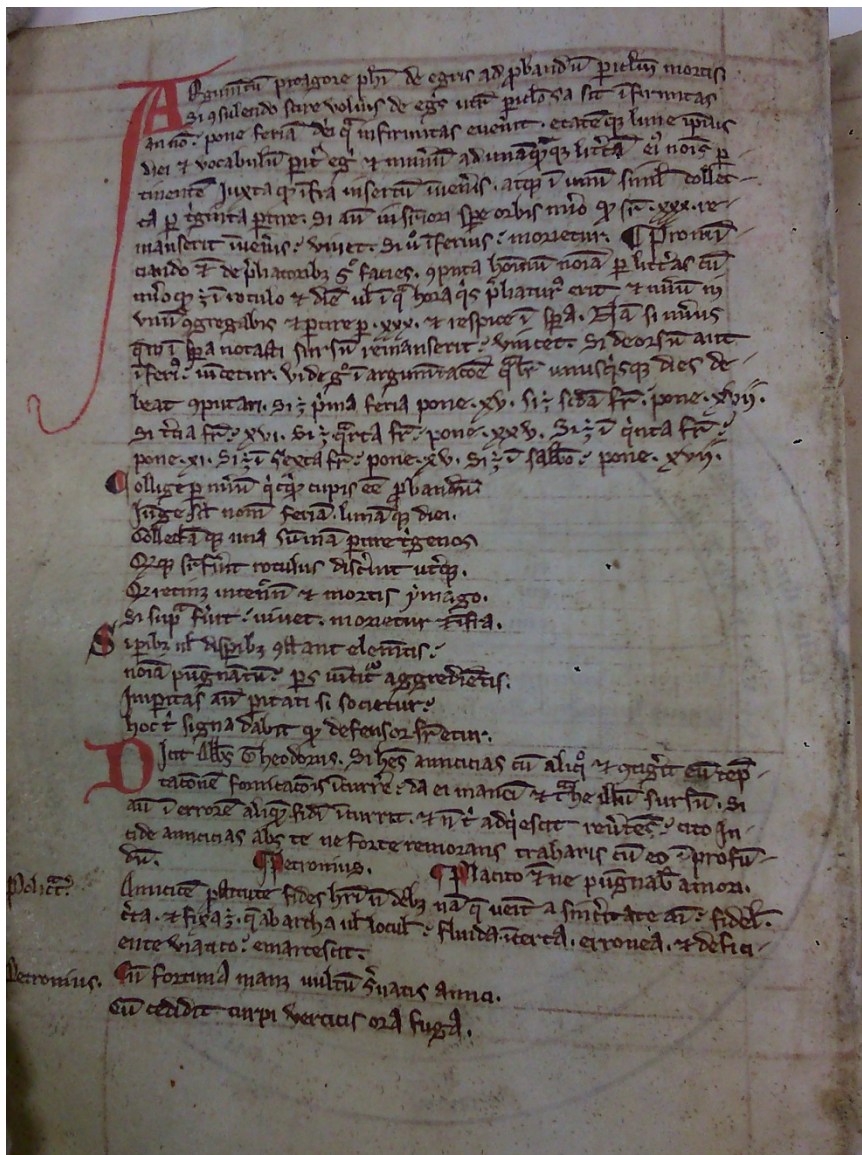


Figure 8a

Cambridge, Gonville and Caius College Library MS  
225/240 p. 143

By permission of the Master and Fellows of Gonville and Caius College, Cambridge





### Figure 8b

Cambridge, Gonville and Caius College Library MS  
225/240 p. 144

By permission of the Master and Fellows of Gonville and Caius College, Cambridge





Figure 9a

Oxford, Bodleian Library MS Digby 29, f. 193r









Figure 10a

Oxford, Bodleian Library MS Bodley 579, f. 49v

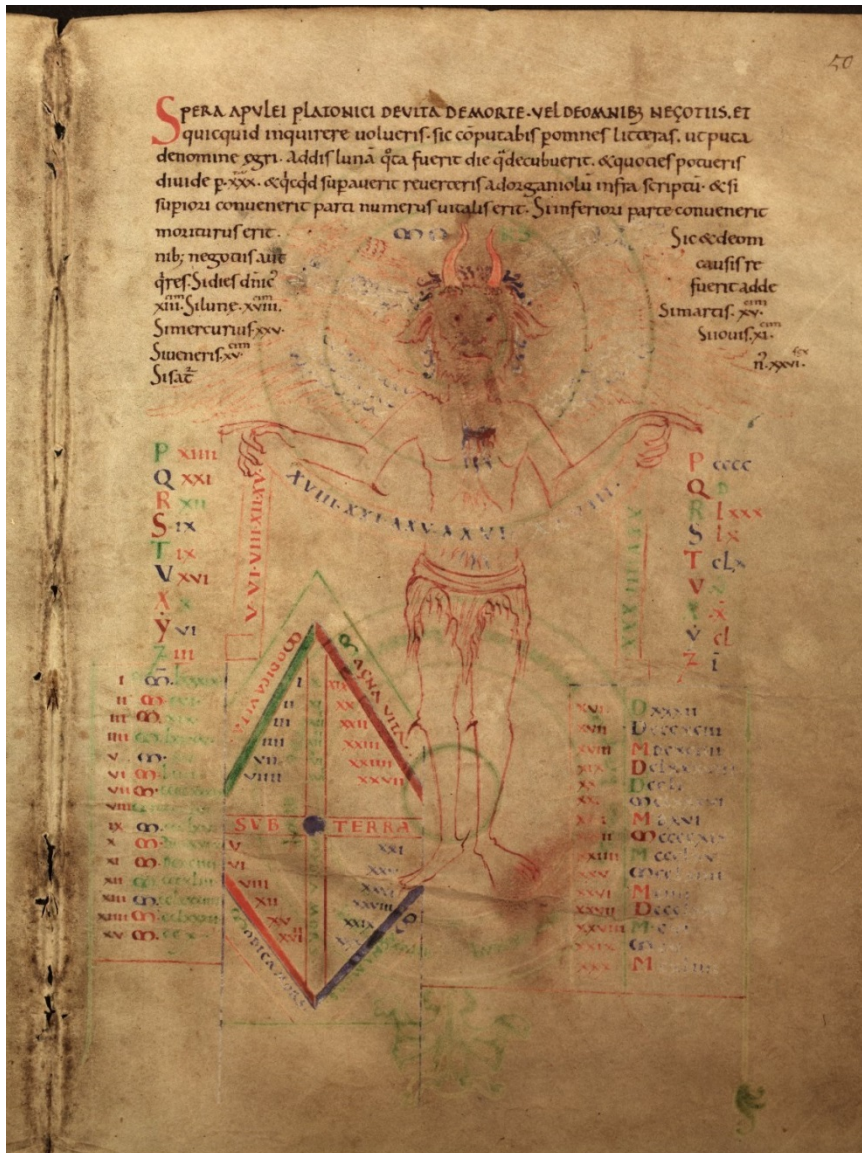


Figure 10b

Oxford, Bodleian Library MS Bodley 579, f. 50r



Figure 11

London, Wellcome Library MS 21, f. 7r





Figure 12a

Oxford, St. John's College Library MS 17, f. 40v  
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College, Oxford



Figure 12b

Oxford, St. John's College Library MS 17, f. 40v

By permission of the President and Fellows of St John's  
College, Oxford





Figure 13

Cambridge, Trinity College Library MS O.7.41, f. 1r  
 By permission of the Master and Fellows of Trinity  
 College, Cambridge

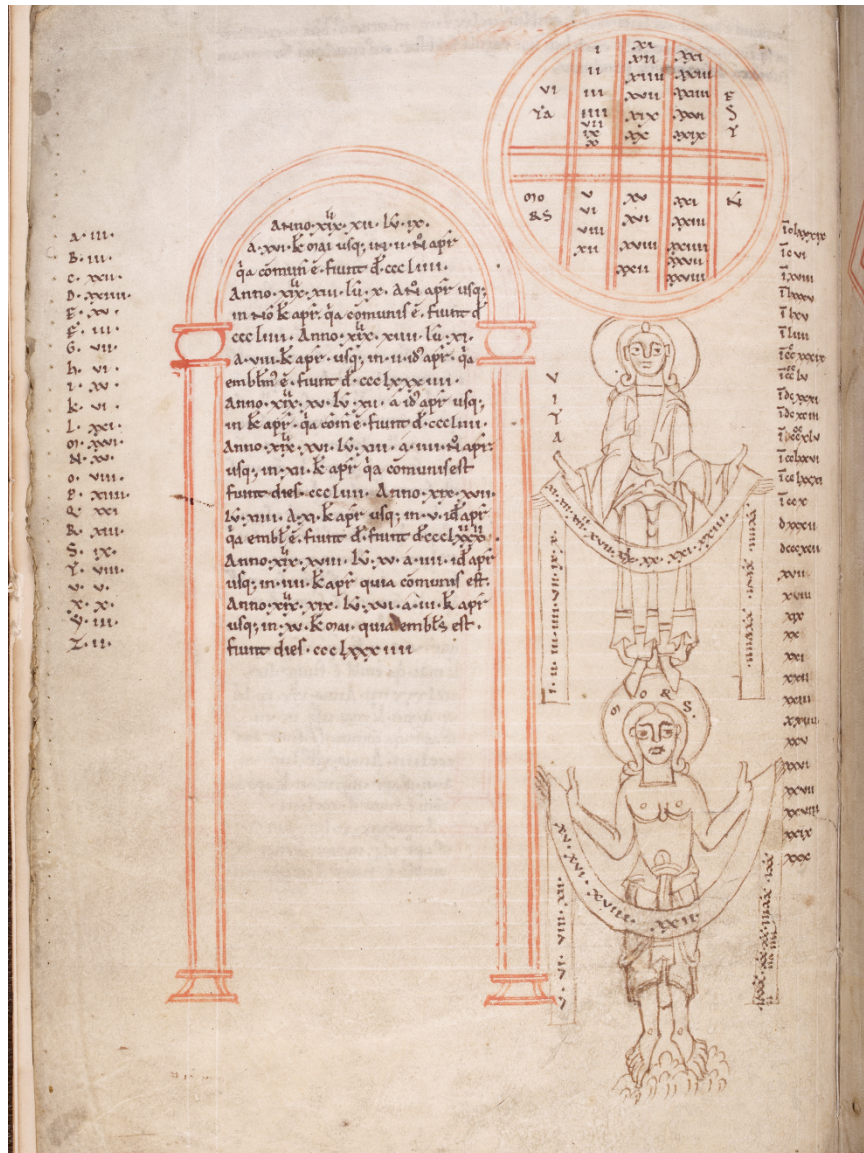


Figure 14a

London, BL MS Harley 3667, f. 4v

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Figure 14b

London, BL MS Harley 3667, f. 4v

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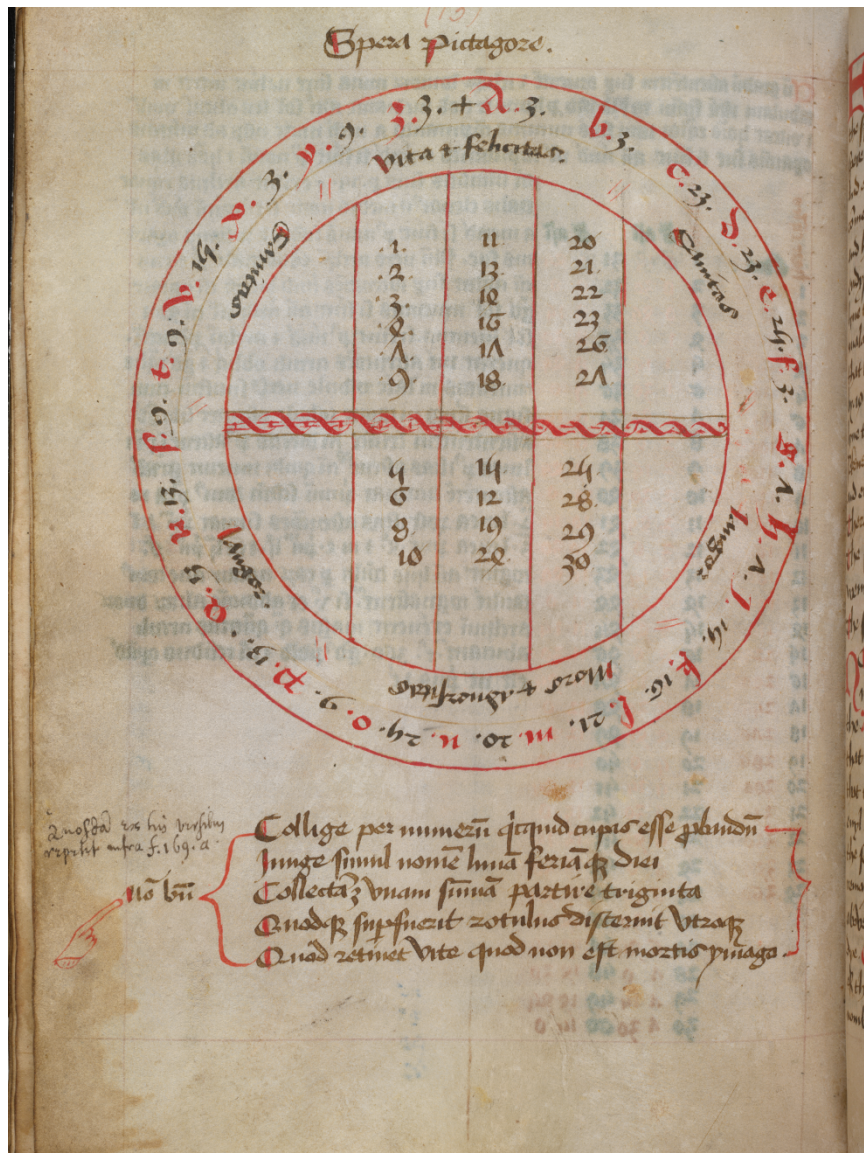


Figure 15a

London, BL MS Harley 3719, f. 175v

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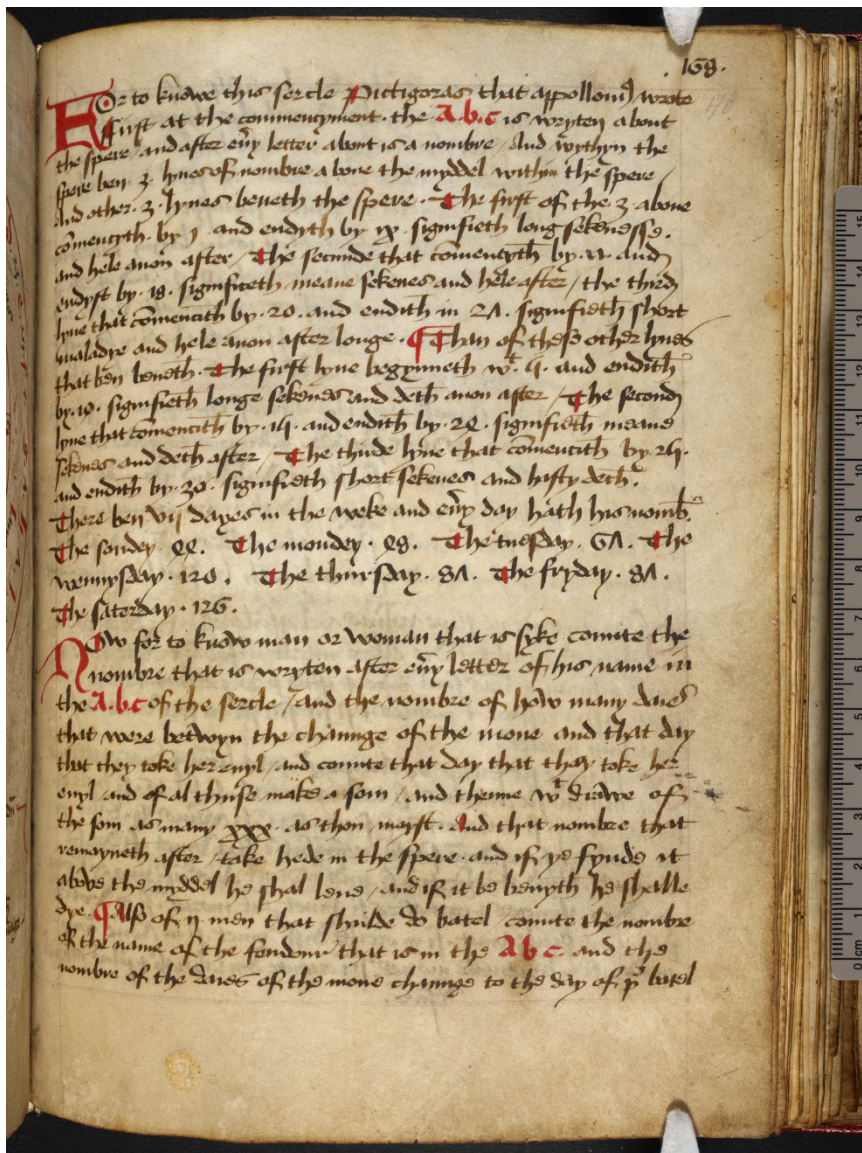


Figure 15b

London, BL MS Harley 3719, f. 176r

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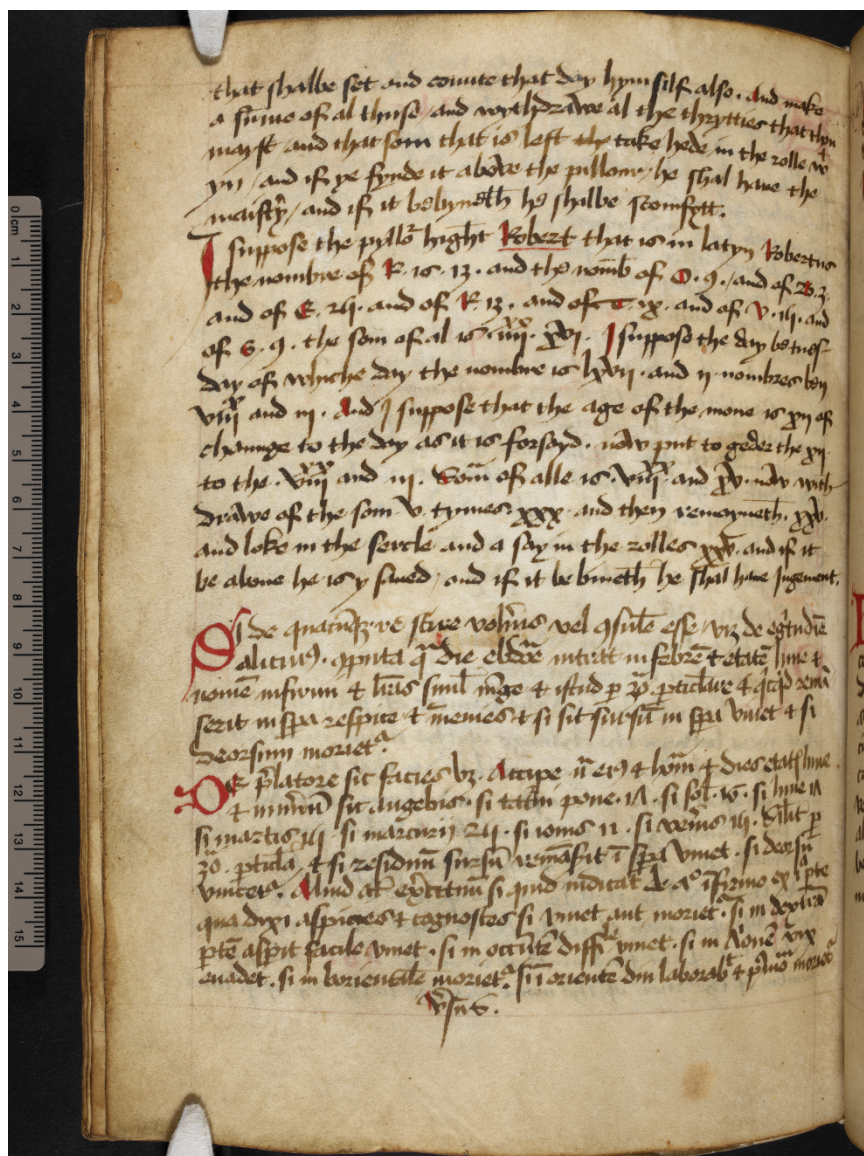


Figure 15c

London, BL MS Harley 3719, f. 176v

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**P**uo comist le coe en le cercle de cal Belacion  
 a comencement la. a. b. c. est estrop sur la coe  
 de l'un et a pres phesthuy lre en vray en by nombres  
 de l'ine la coe sont. z. l'ine de l'ine la mlt. z. autres.  
 p. d'ont la mlt. La pnd de l'z. z. de l'z. comence p. 1.  
 fuit p. 9. signifie long maladie z. vie a pres. La seconde  
 l'ne q comence p. 10. z. fuit p. 14. signifie mene maladie  
z. vie a ps. La tierce l'ne q comence p. 19. z. fuit p. 24.  
 signifie court maladie z. vie a ps. Les autres. z. l'ne  
 de l'ne de l'ne. La pnd comence p. 4. z. fuit p. 12.  
 signifie long maladie z. mort a ps. La seconde l'ne  
 q comence p. 14. z. fuit p. 22. signifie mene maladie  
z. mort a ps. La tierce l'ne q comence p. 24. z. fuit  
 p. 30. signifie court maladie z. hastif mort. **¶** Sept  
 l'ne sont en chesluy semaine z. chesluy ro ad son  
 nombre come la coe fait menaon. Que a comist  
 l'ne on fone q est malade. notez le nombre q est  
 estrop a ps chesluy lre de son non en la. a. b. c. any la  
coe z. le nombre de tantz ro q fuit p entre la change  
 de la l'ne z. cele ro qil prest la maladie z. la yage  
 d'any la ro qil prest la maladie z. de ces fetez en somme

Figure 17a

London, Wellcome Library MS 559, f. 45r



total. Et a p<sup>o</sup> retirez de mesme le p<sup>o</sup>me a tantz de  
 de rentez come p<sup>o</sup>ez & cele nombre q<sup>e</sup> venant a p<sup>o</sup> regu  
 de en la Roie & si vo<sup>z</sup> le trouvez p<sup>o</sup> defuz la m<sup>o</sup>te el G<sup>o</sup>u<sup>o</sup>  
**D**es champions contez **Q**u<sup>e</sup> si p<sup>o</sup> defuz il n<sup>o</sup>ra  
 le non de la defende q<sup>e</sup> est en la .a. b. c. f. fust  
 dit & le nombre de<sup>z</sup> iob de la change de la l<sup>o</sup>me resp<sup>o</sup>  
 a la<sup>o</sup> que la battail<sup>o</sup> soit ioint & comtez cele<sup>o</sup> m<sup>o</sup>te  
 mes & fotez en p<sup>o</sup>me total & donq<sup>e</sup> retirez p<sup>o</sup> tantz  
 de trent come p<sup>o</sup>ez & ces q<sup>e</sup> venant a regardz en la  
 Roie & si vo<sup>z</sup> trouvez de p<sup>o</sup> defuz benq<sup>e</sup>ra l'appello<sup>o</sup> et si de<sup>z</sup>  
 defuz il sera venans. Ore supposons q<sup>e</sup> l'appello<sup>o</sup> ont  
noy Robert cest a dire en l'at<sup>o</sup> Robertus. que le nombre  
est .13. de .8. & le nombre de .9. 6. 3. 2. 4. 7. 13. 5. 8.  
.6. 4. 9. 9. Le s<sup>o</sup>me .84. Ore supposons q<sup>e</sup> le<sup>o</sup> est garde  
de quele<sup>o</sup> la nombre est .14. & deux deux nombres ser  
vont .100. Ore supposons auz q<sup>e</sup> l'age de la l<sup>o</sup>me est  
.12. de change tantz a la<sup>o</sup> .10. Ore mettez .12. a la .100.  
& sera en tout .112. Donq<sup>e</sup> retirez de cele s<sup>o</sup>me .112. 30.  
que vo<sup>z</sup> trouvez & donq<sup>e</sup> venant a p<sup>o</sup>me requiez en  
la Roie le nombre de .22. si soit de fuz & donq<sup>e</sup> vo<sup>z</sup>  
avez la m<sup>o</sup>te.

Figure 17b

London, Wellcome Library MS 559, f. 45v



Figure 17c

London, Wellcome Library MS 559, f. 47r



Figure 18

Cambridge, Trinity College Library MS O.9.10, f. 75v  
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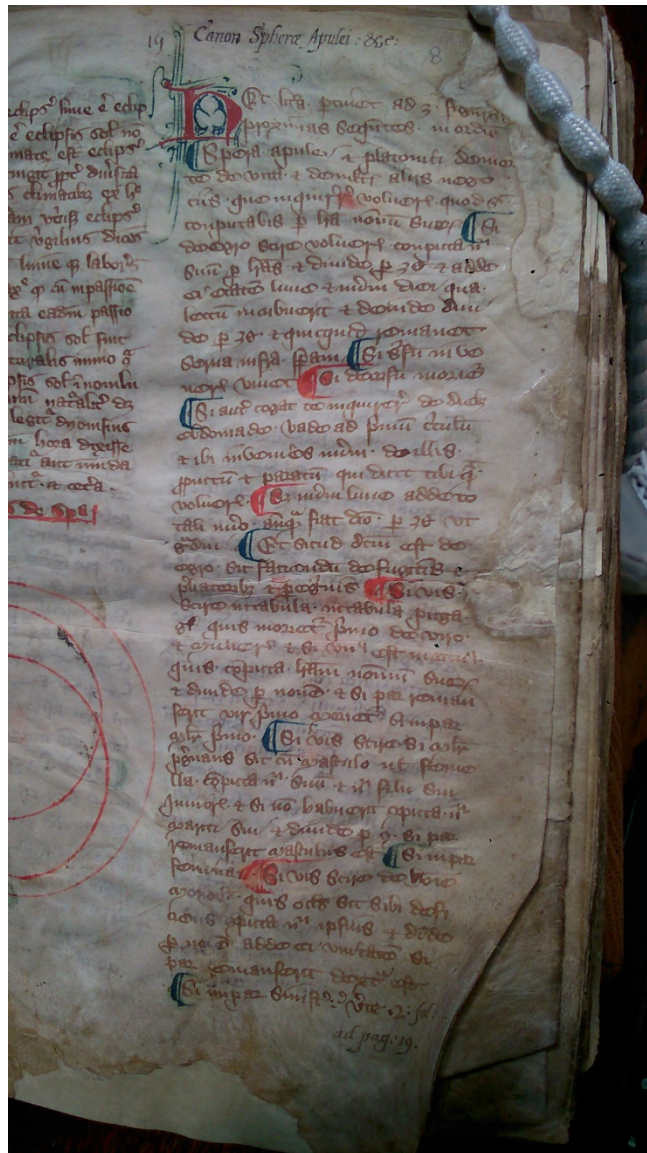


Figure 19a

Cambridge, Trinity College Library MS O.2.5, f. 8r  
By permission of the Master and Fellows of Trinity  
College, Cambridge



Figure 19b

Cambridge, Trinity College Library MS O.2.5, f. 10r  
 By permission of the Master and Fellows of Trinity  
 College, Cambridge



Figure 19c

Cambridge, Trinity College Library MS O.2.5, f. 10v  
 By permission of the Master and Fellows of Trinity  
 College, Cambridge



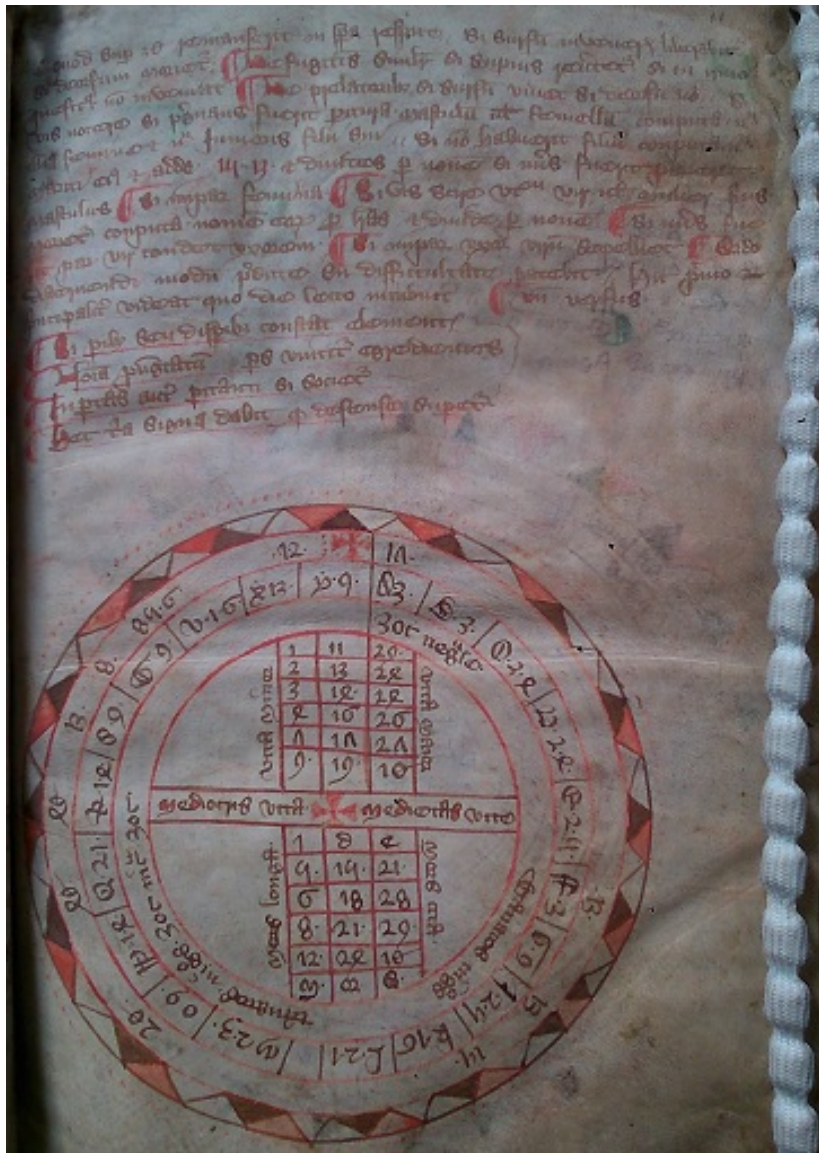


Figure 19d

Cambridge, Trinity College Library MS O.2.5, f. 11r  
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 College, Cambridge



Figure 19e

Cambridge, Trinity College Library MS O.2.5, f. 192v  
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 College, Cambridge



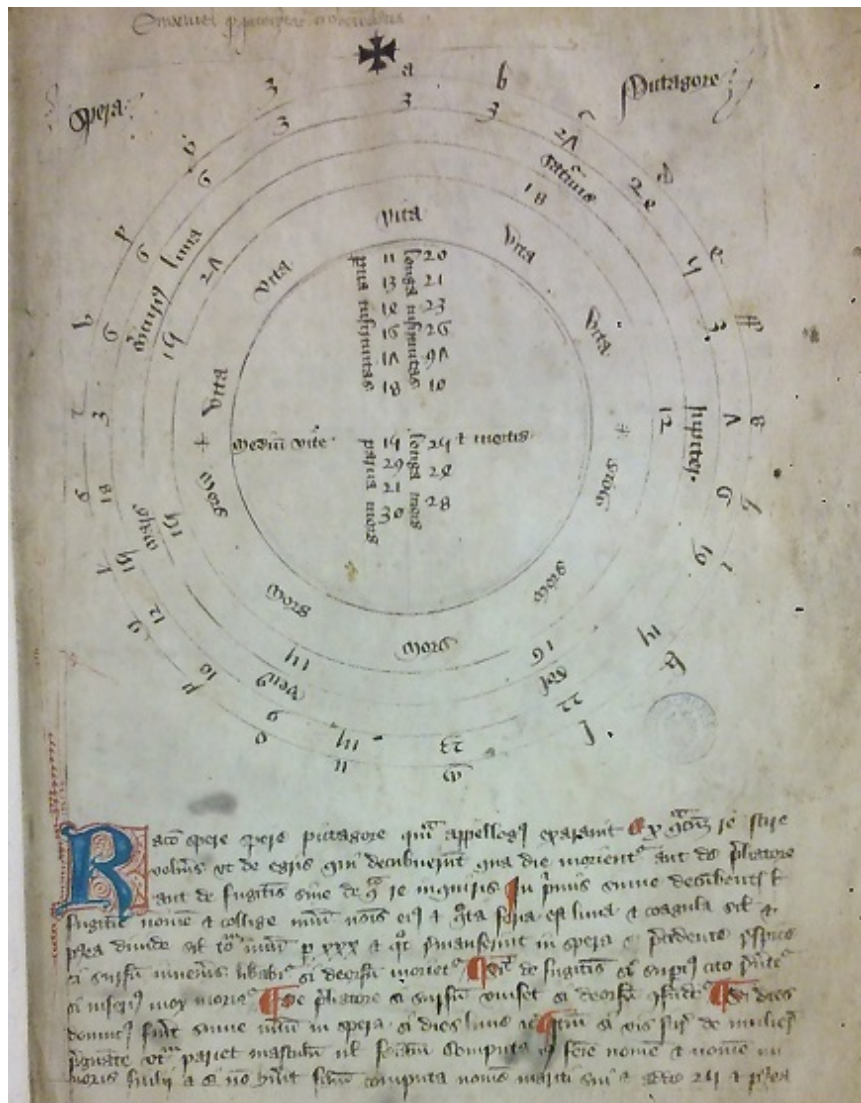


Figure 20a

Oxford, Bodleian Library MS Bodley 177, f. 1r

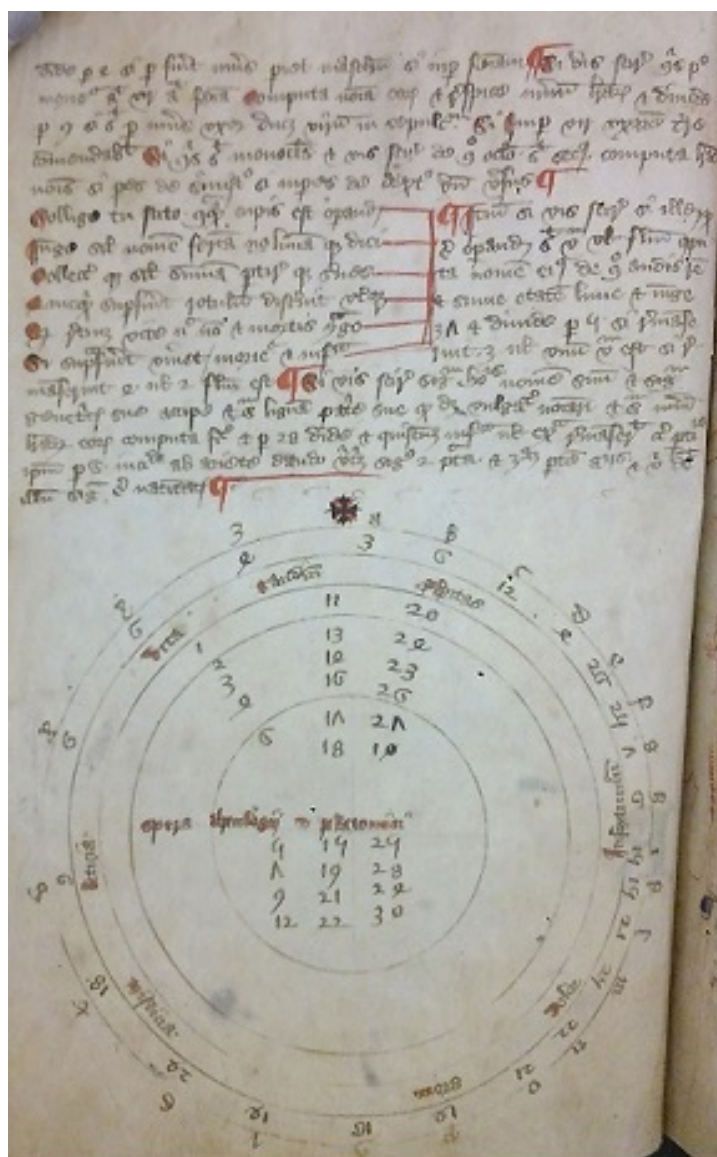


Figure 20b

Oxford, Bodleian Library MS Bodley 177, f. 1v

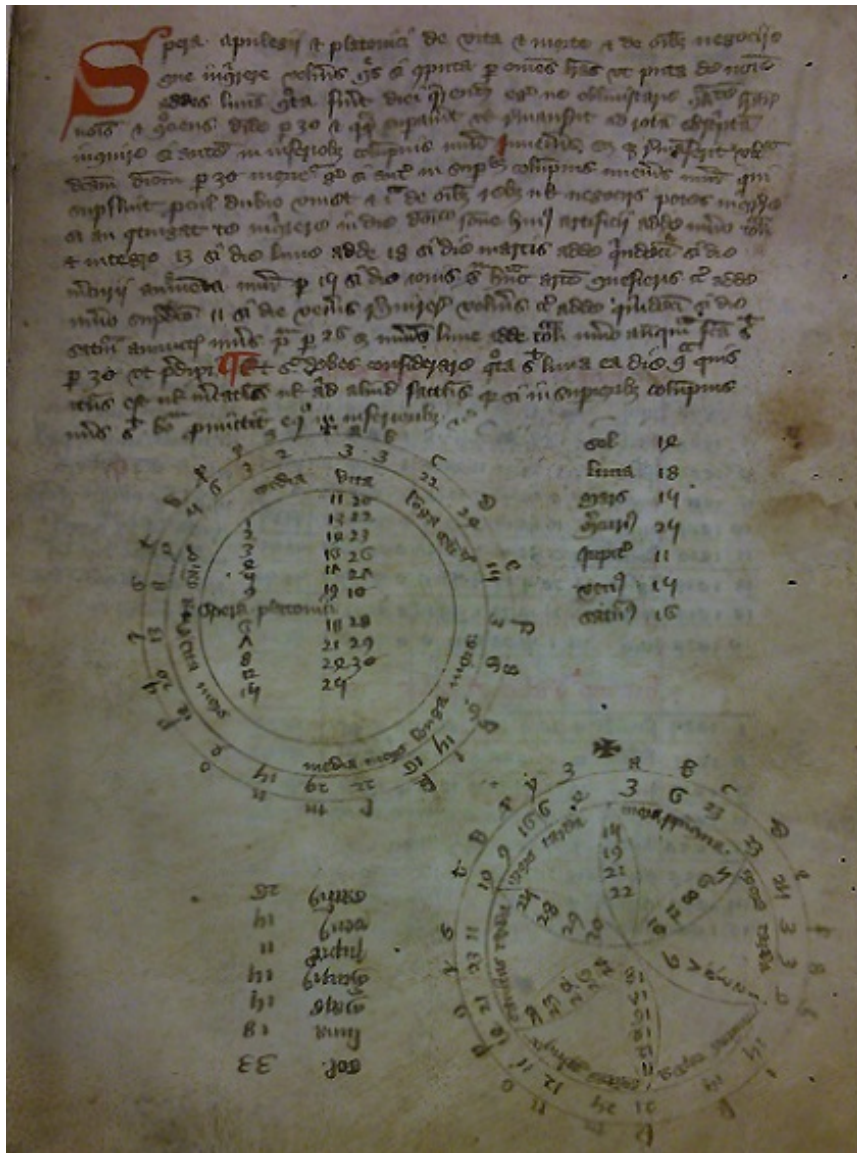


Figure 20c

Oxford, Bodleian Library MS Bodley 177, f. 22r



Memoratio de contentis in isto libro	
Primum calendays cum eclipsibus solis et lune	fol. 1
Tabula de lineis dominicalibus et bisextis	2
Tabula de festis pasche	9
Tabula de festis mobilibus	9
Tabula de signis lune	19
Tabula docens quod planeta regnat per quibus hora	21
Homo ad per signis planetarum	
Tractatus ad monstrandum altitudinem rerum	11. 81
Tractatus de phisica secundum Aristotleem	90
Tractatus de palmistia	93
Tractatus de compingis daniel	100
Tabula ad cognoscendum quanta hora per longum	117
Homo de flenbetemate	117
Compositio mammalis	21
Tractatus de algorismi	3
Tractatus de finibus tractatus de coloribus	3
Opera pitagore	3
Tractatus de antelio algorismi	3
Tractatus de virtutibus herbarum	3
Medicine egypte	3
Tractatus per quem cognoscitur ad deditendum	
aquam dulcem ab uno loco ad alium	
Corum serpentis mysteria	69
Tomitarum significatio	70
Betonice virtutes	71. 72. 73
Preparatio pro morbis	74

Figure 21

Cambridge, Trinity College Library MS O.1.57, f. 4r  
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Figure 22a

London, BL MS Royal 12 G IV, f. 160r

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Figure 22b

London, BL MS Royal 12 G IV, f. 187v

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Figure 23a

Oxford, Bodleian Library MS Bodley 26, f. 207r

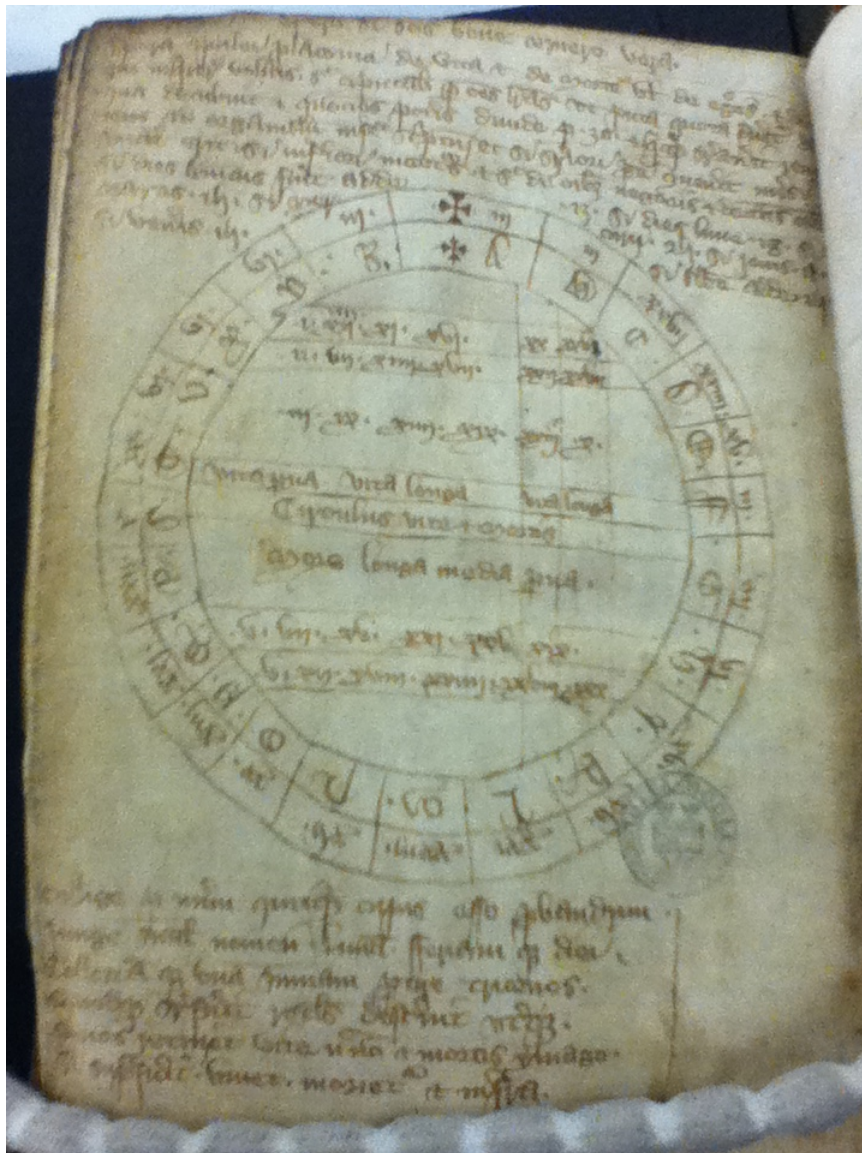


Figure 23b

Oxford, Bodleian Library MS Bodley 26, f. 216v





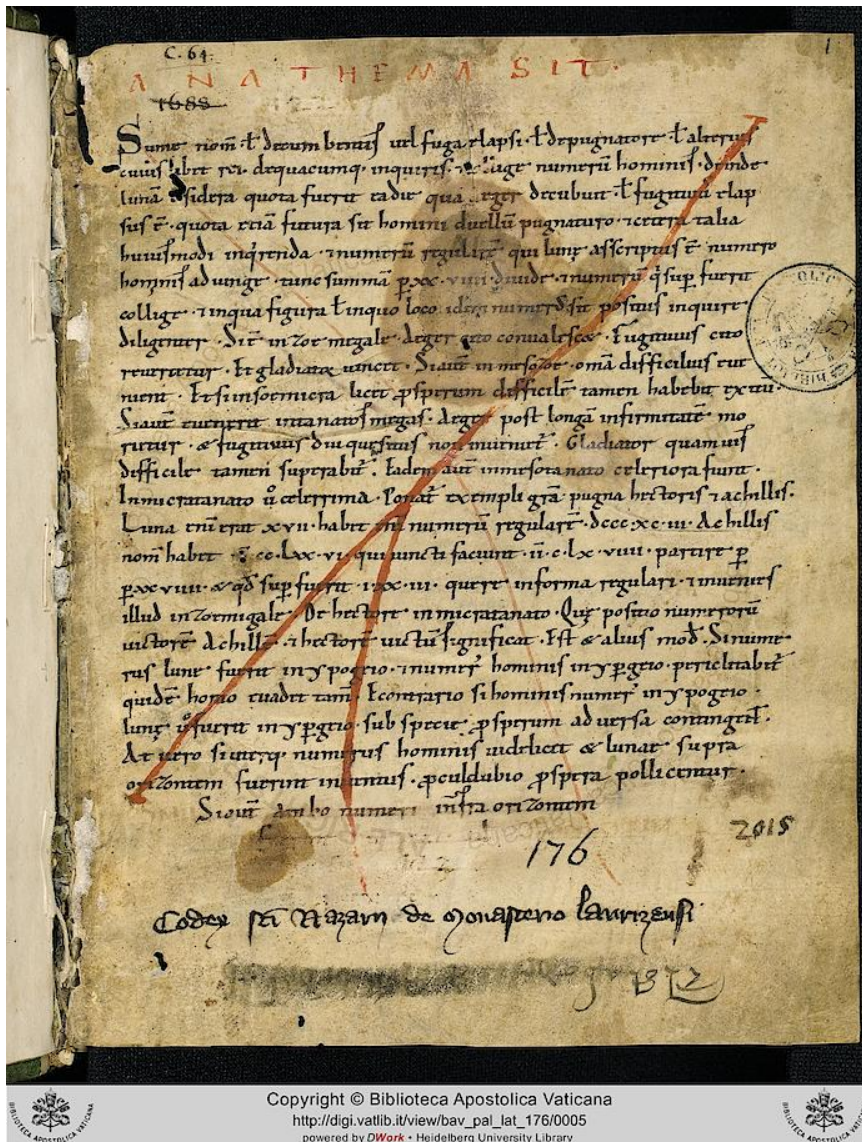


Figure 25a

Vatican, Biblioteca Apostolica Vaticana MS Palat. lat. 176,  
f. 1r



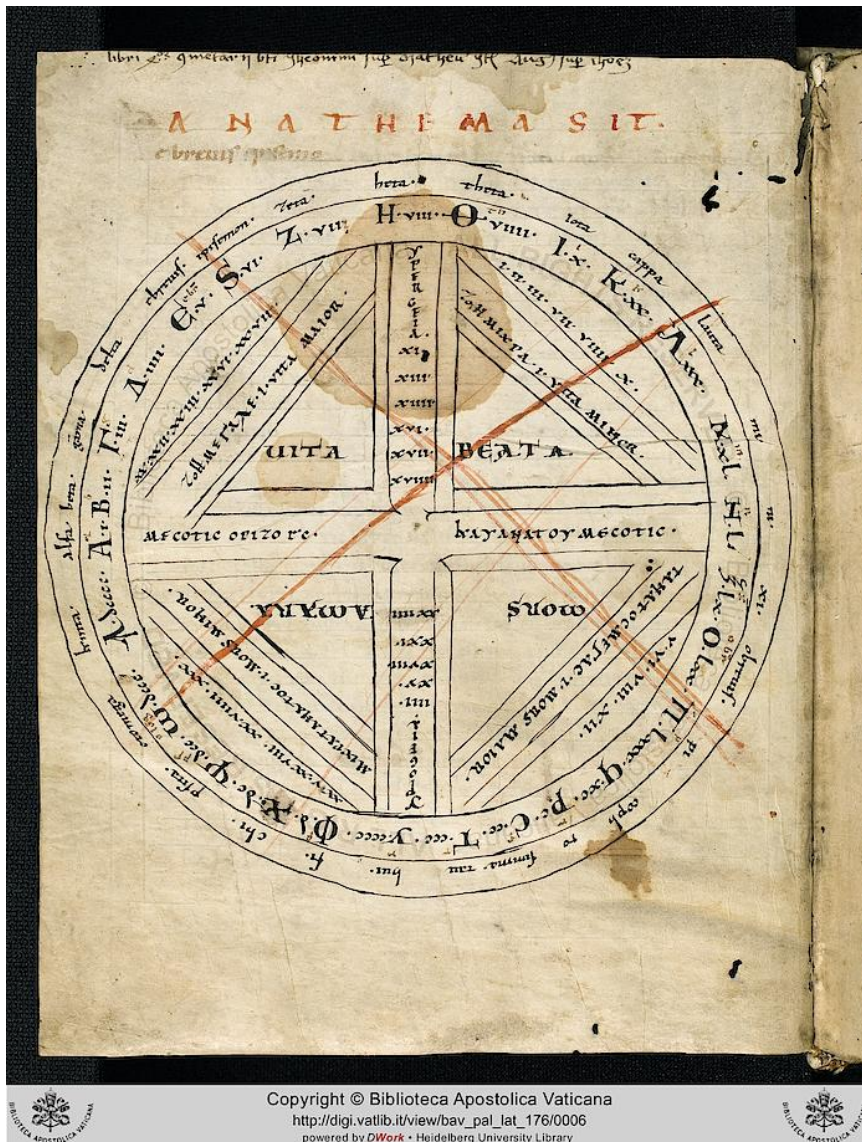


Figure 25b

Vatican, Biblioteca Apostolica Vaticana MS Palat. lat. 176,  
f. 1v

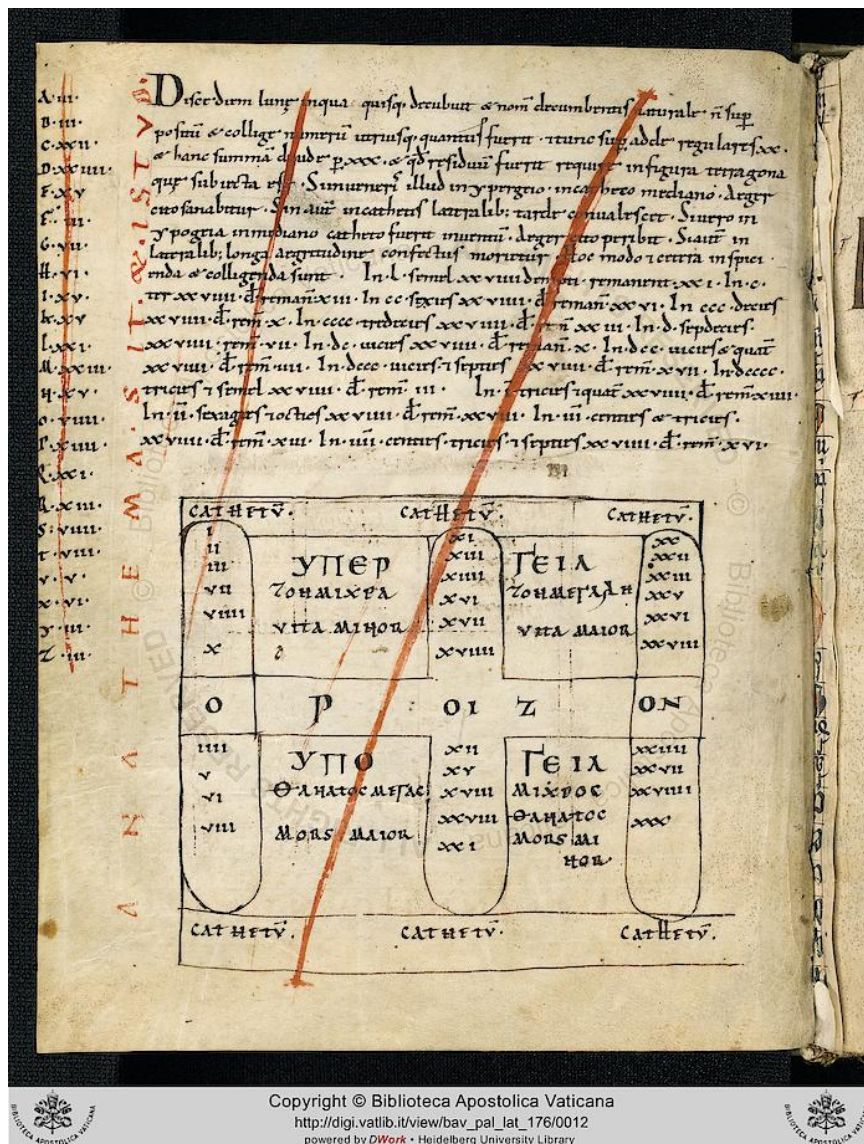


Figure 25c

Vatican, Biblioteca Apostolica Vaticana MS Palat. lat. 176,  
f. 4v





Figure 25d

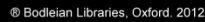
Vatican, Biblioteca Apostolica Vaticana MS Palat. lat. 176,  
f. 162v



Figure 26a

Oxford, Bodleian Library MS Digby 46, f. 107r





Oxford, Bodleian Library MS Digby 46, f. 107v

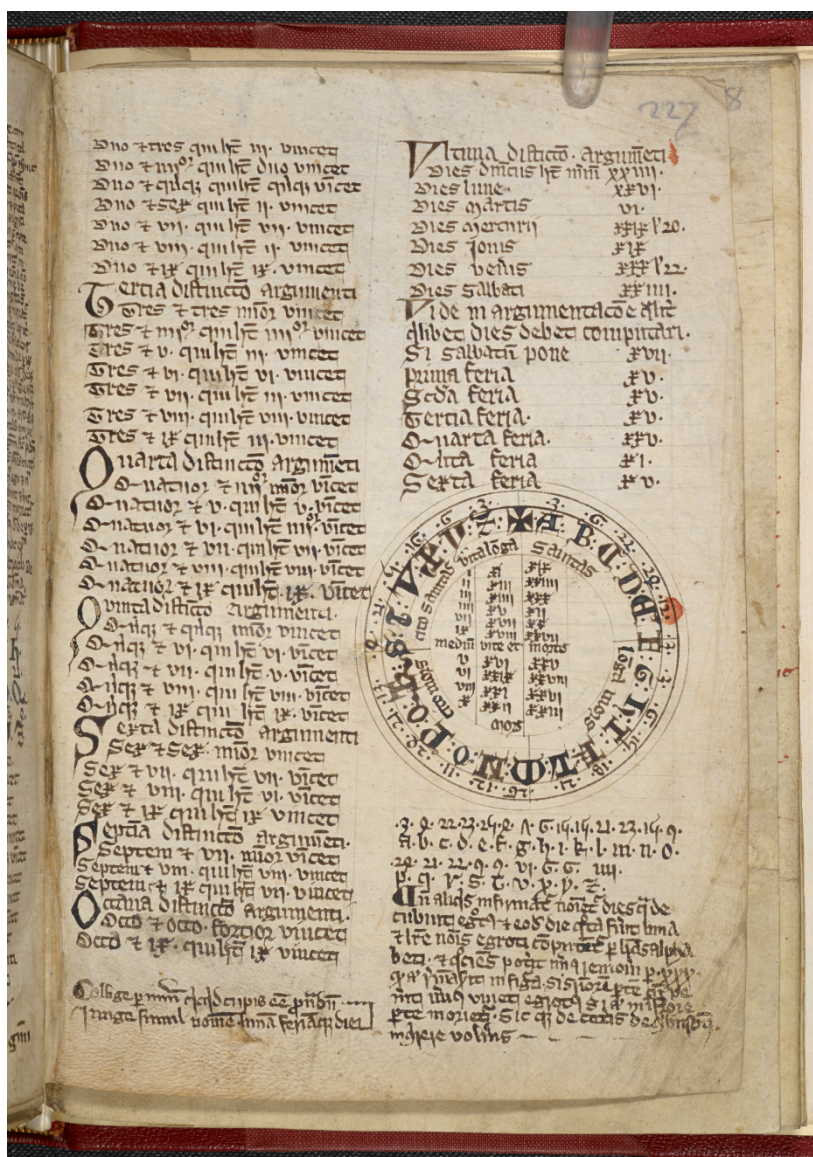


Figure 27

London, BL MS Harley 267, f. 227r

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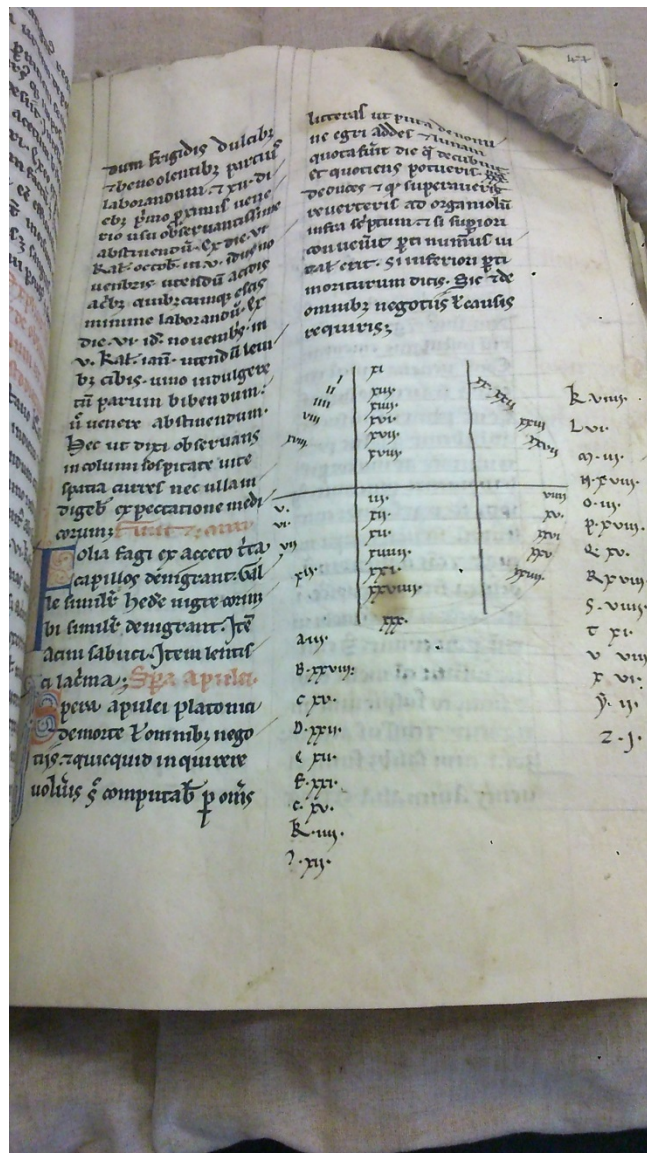


Figure 28

Cambridge, Peterhouse MS 222, f. 47r  
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Figure 30a

London, BL MS Sloane 3229, f. 6v

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Figure 30b

London, BL MS Sloane 3229, f. 7r

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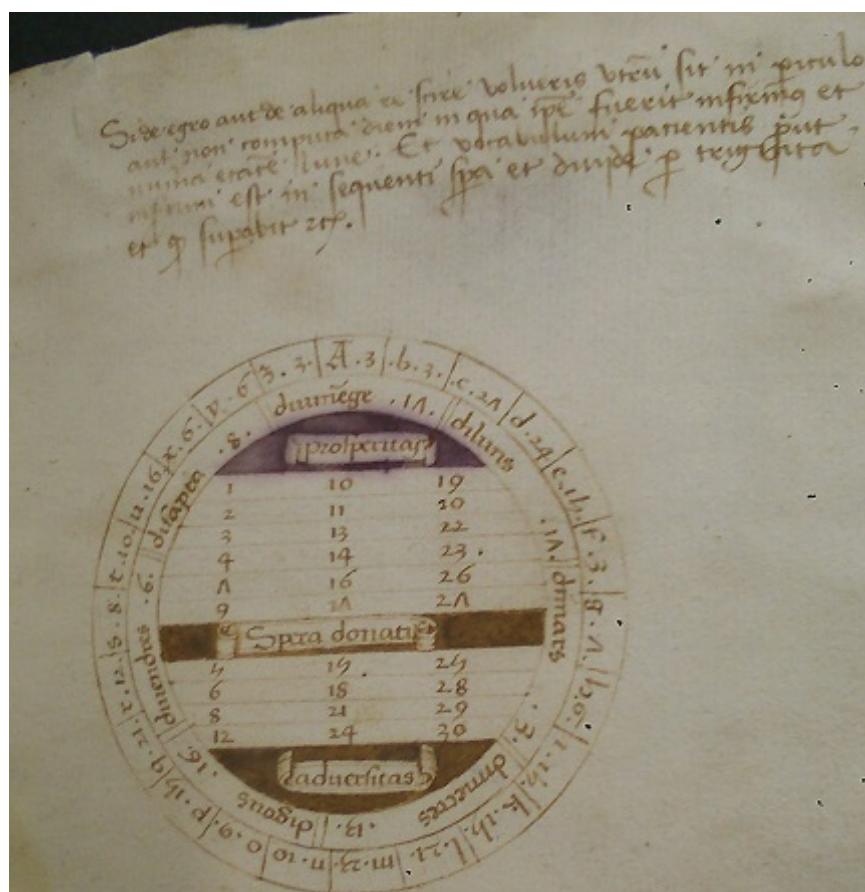


Figure 31

London, Wellcome Library MS 562, f. 62r





Figure 32

London, BL MS Harley 5311, leaf J

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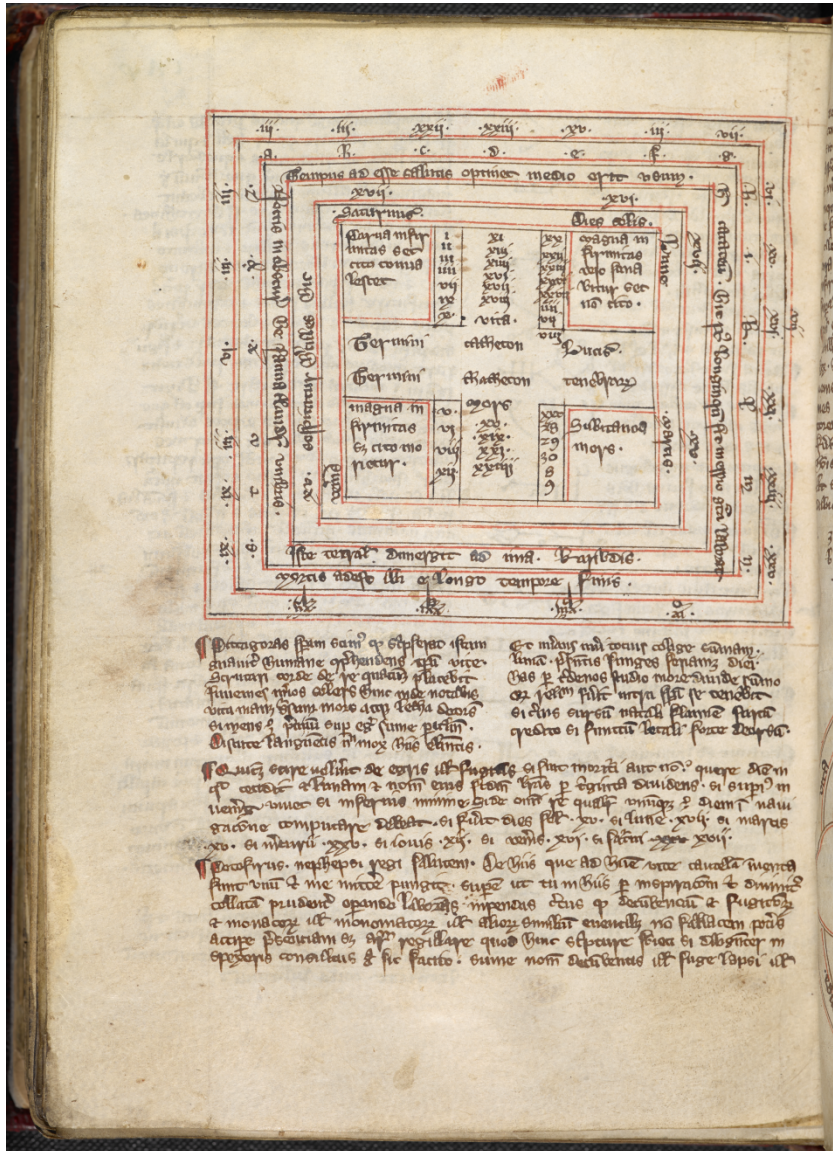


Figure 33a

London, BL MS Royal 12 E XXV, f. 164v

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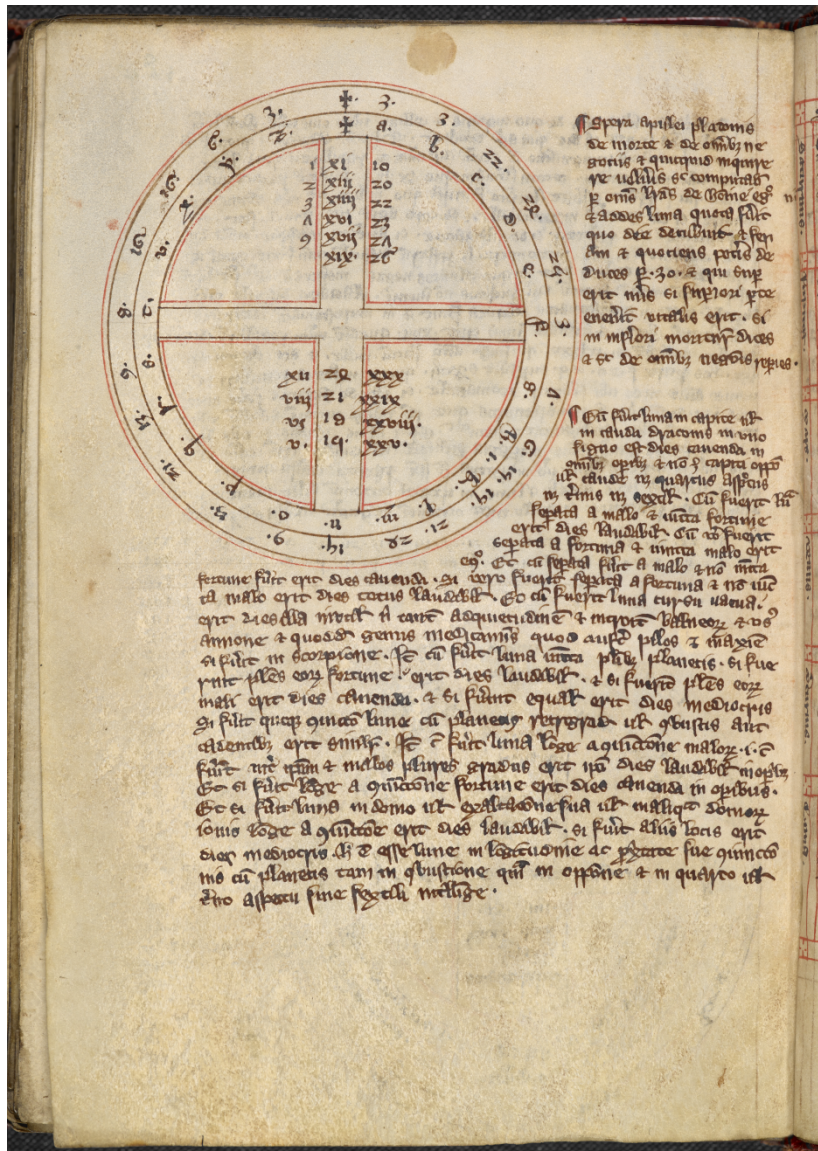


Figure 33c

London, BL MS Royal 12 E XXV, f. 165v

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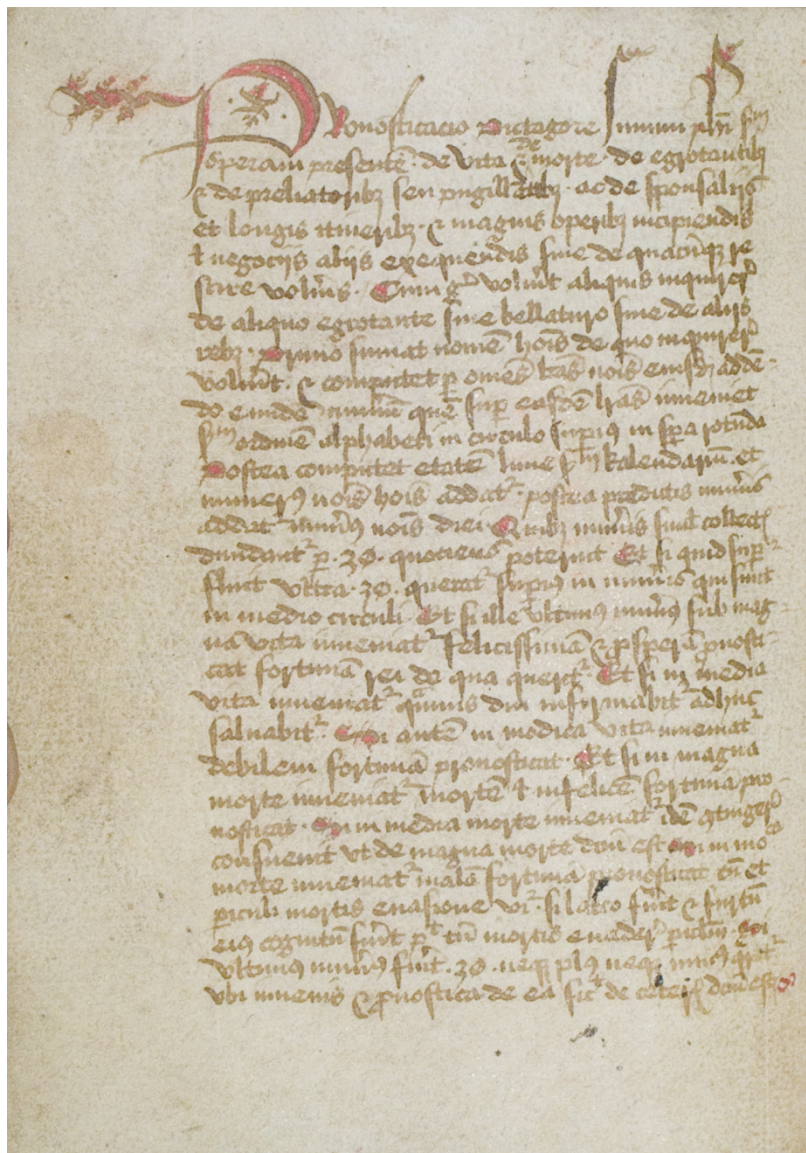


Figure 34a

London, Society of Antiquaries Library MS 306, f. 29v



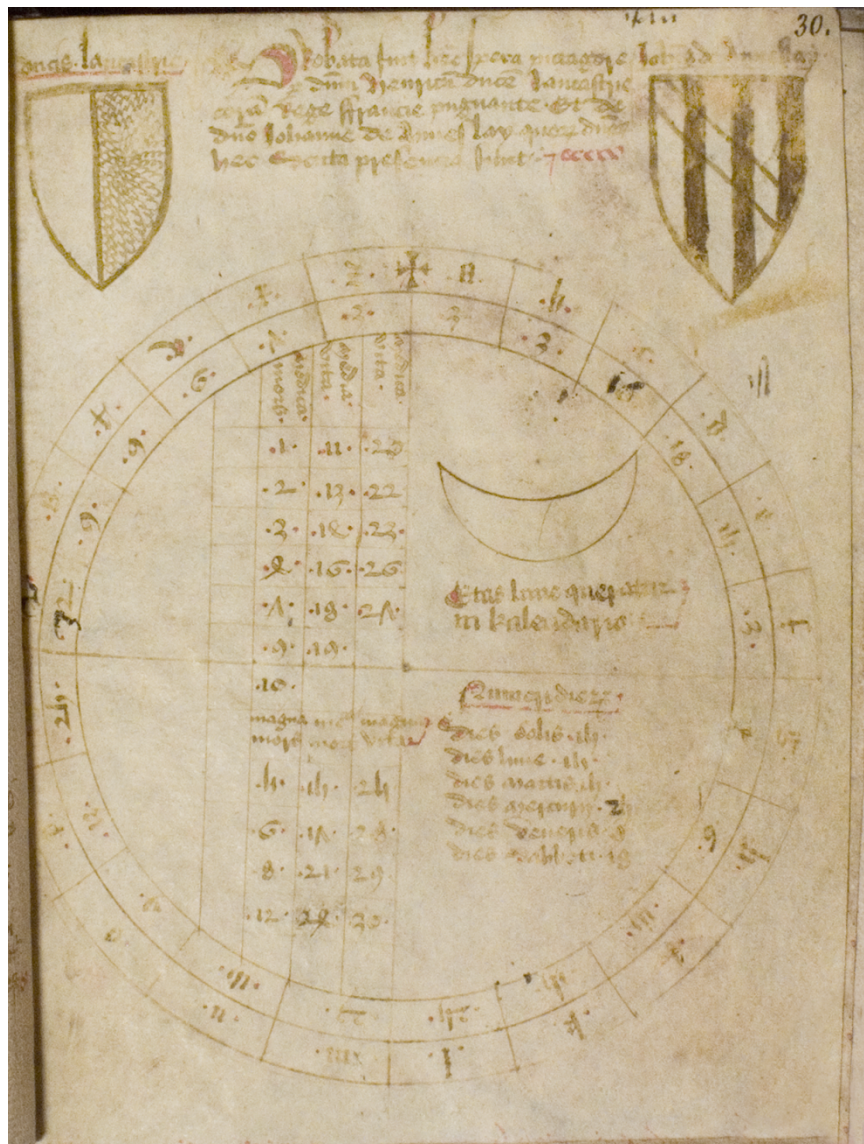


Figure 34b

London, Society of Antiquaries Library MS 306, f. 30r



Figure 35a

Oxford, Bodleian Library MS Ashmole 340, f. 107r

In 20 notitia pictagorus sum pgi pgi  
 spaz pntoz de vita et de morte de equo  
 tantibz p de plicatoribz sen pugillantibz  
 ac de sponsalijs p longis ite mibz et magis  
 nis opibz incipiendo ut negocijs alio  
 epe qd pmo degnatuz 20 pns voluens  
 p qd voluit aliqua inqur p de a  
 egrotante suo de tollatore suo de alio  
 rebz pmo sumat nomo gois de quo  
 inqurere voluit et copnot p omes has  
 nois sui addendo eund. nimm qm sup  
 east. has mndm p ordm alphabeti  
 m crcto supiq m spa rotunda p ea pnt  
 etatem luno p kalondarum und nois  
 gois addat p ea pnt mnd addat  
 und nois diei und sunt collecti dim  
 dant p 30 quociens potuit Et si  
 quid supfluit vlt. 10. qrat supiq m  
 nna q fut m modio crcto et si ipse  
 vltiq und p p magna vita immort  
 felicissima p pspaz pnoticat for  
 tina 20 de qua quorat et si m  
 media vita immortetur qm d m mfr  
 mabit adque saluabitur Si aut m

Figure 35b

Oxford, Bodleian Library MS Ashmole 340, f. 107v







Figure 36

Cambridge, Trinity College Library MS O.2.45, p. 1  
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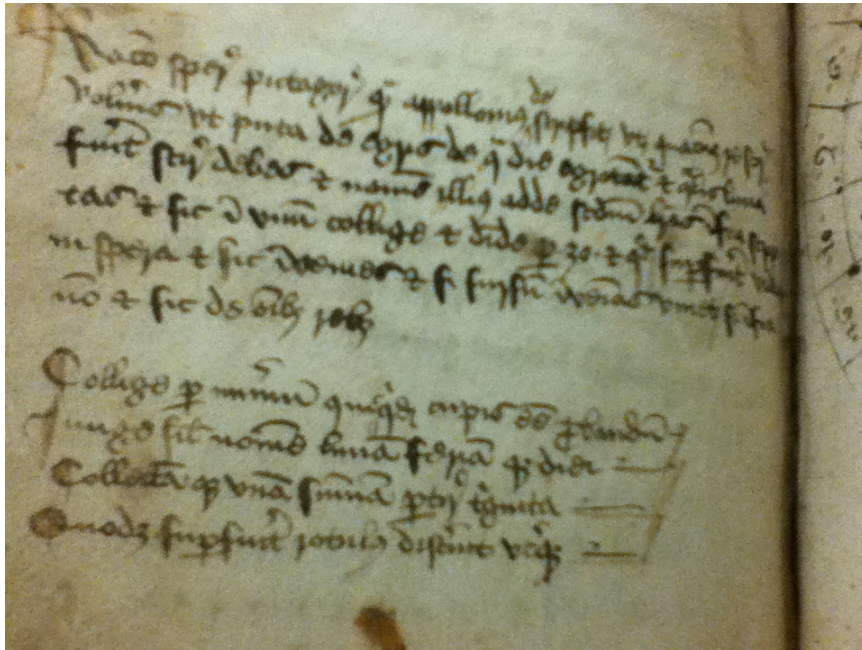


Figure 37a

Oxford, Bodleian Library MS Rawlinson C 506, f. 15v





Figure 37b

Oxford, Bodleian Library MS Rawlinson C 506, f. 16r